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December 1988 $2.95
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Home Office COMPUTING™

EDITORS' PICKS 1988

The Best Hardware and Software of The Year

12
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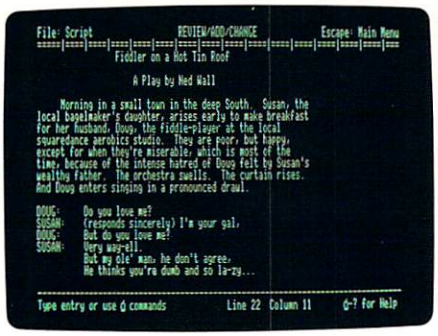
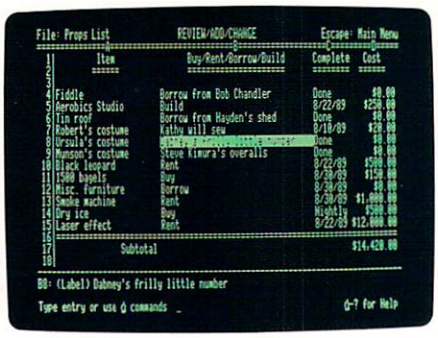
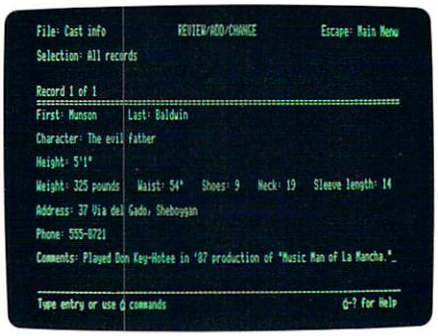
Everything isn't what it used to be.



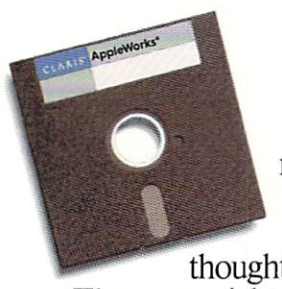
With a word processor, spreadsheet and database in one package, AppleWorks has just about everything an Apple II owner could want.



You can jump from one program to another in the blink of an eye. Which makes AppleWorks an exceptional choice for fast-paced businesses.



AppleWorks is the best-selling Apple software of all time. And if you own an Apple IIe or IIc, you still can't buy a more powerful program.



When AppleWorks® rocketed to the top of the best-seller lists a few years back, Apple II owners thought they had seen everything.

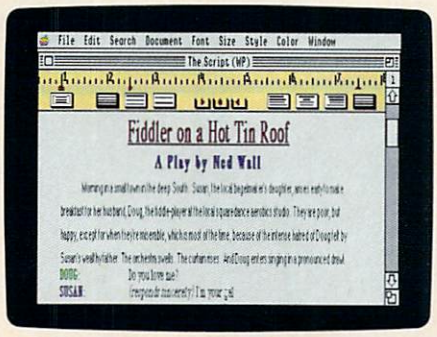
They were right. AppleWorks contained every program you could possibly want in just one program. And exercised the power of the Apple II like it had never been exercised before.

But then came the Apple IIGS. With more power and new capabilities. Everything had changed. And Apple IIGS owners wanted more.

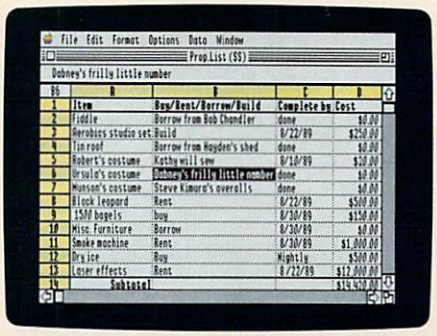
A program with everything AppleWorks has. And everything else, too.

© 1988, Claris Corporation, 440 Clyde Avenue, Mountain View, California 94043; ***(415) 962-8946.*** *Claris is a trademark of Claris Corporation. AppleWorks is a registered trademark of Apple Computer Inc. In Canada, call* ***800-668-8948.*** *AppleWorks GS requires an Apple IIGS with 1.25 megabytes of RAM. If you don't have that*

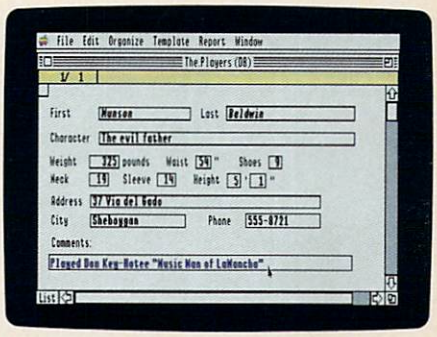
Now it's more.



Like AppleWorks, AppleWorks GS offers a powerful word processor. And you can enhance your work with type styles, sizes and fonts.

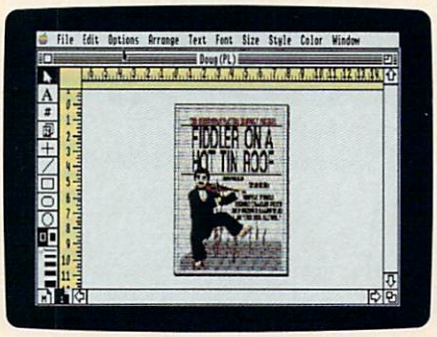


AppleWorks GS can read all your AppleWorks files. And when you transfer your spreadsheets to AppleWorks GS, you can add boldface.

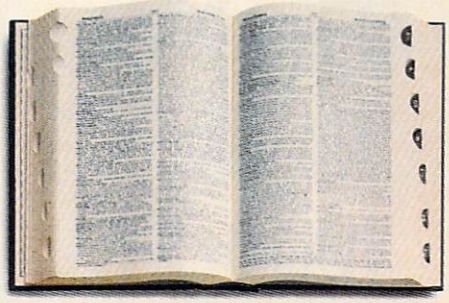


The database lets you store and sort thousands of business, school or home records. And now you can use a mouse and pull-down menus.

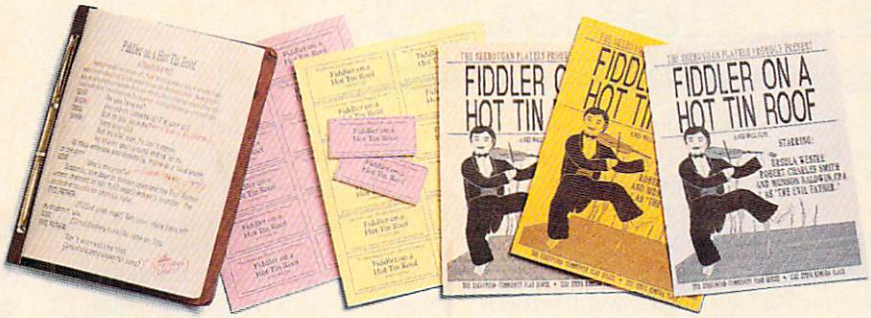
A graphics program that seamlessly combines bit-mapped painting and object-oriented drawing capabilities will leave Macintosh users jealous.



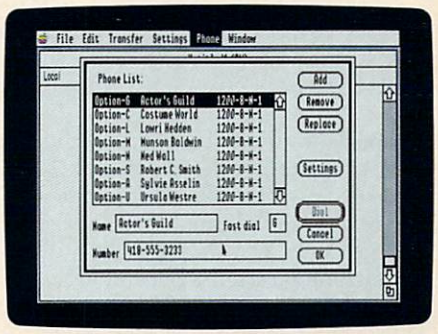
AppleWorks GS includes the most powerful Apple II page-layout program you can buy. Put all the pieces together. Then publish them.



A spell checker with an 80,000-word dictionary is built in. Ditto for a thesaurus that can make you more articulate, eloquent or perspicuous.



What you see is what you get. Because any Apple ImageWriter or LaserWriter printer prints what you see on the screen exactly how you see it. Automatically.



AppleWorks GS supports most popular modems to let you send and receive files via telephone.

Introducing AppleWorks GS.
Six powerful programs in one easy-to-use package. Six programs working together to exploit the full resources of the Apple IIGS. There's even a deal in the works for owners of AppleWorks, MultiScribe and MultiScribe GS.

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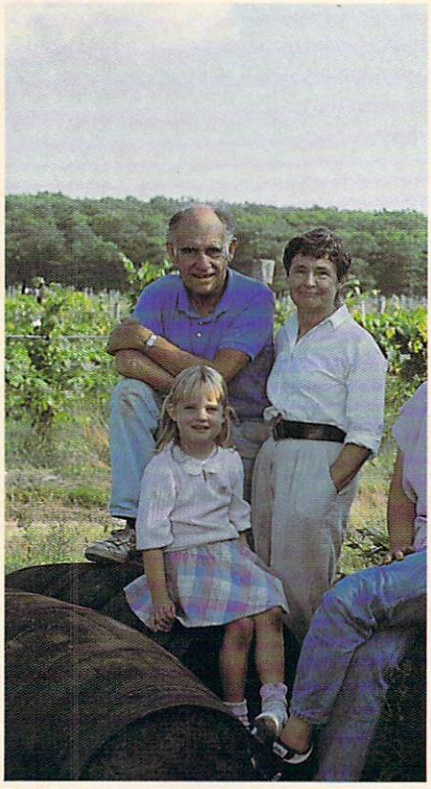

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COVER PHOTOGRAPH BY JOEL WHITE

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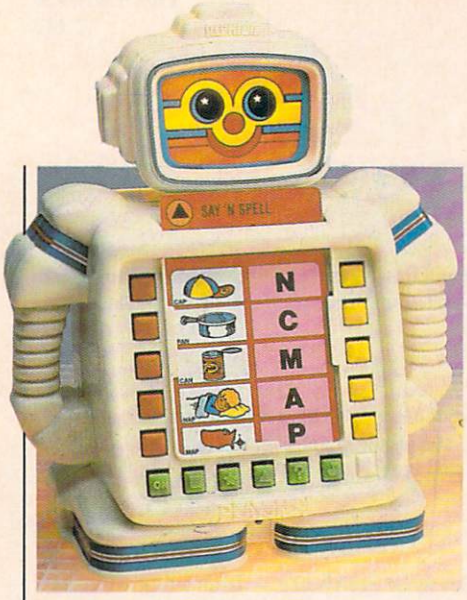

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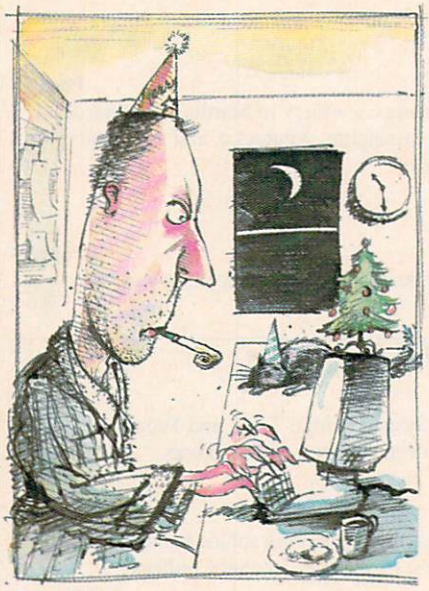

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What can a small business do with an IBM PS/2 today?

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You name it.

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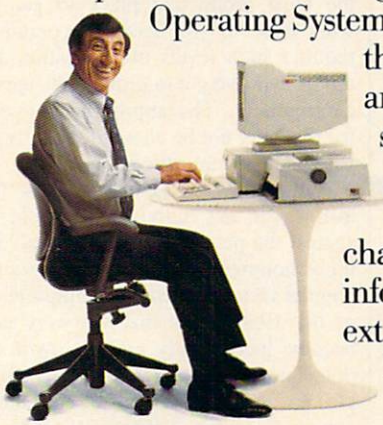

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[ ] 337 - Analyze your credit charges, paymnts, interest w/Charge!
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[ ] 366 - It's simple to keep, average student grades w/Gradescan!
[ ] 376 - Teachers & students can summarize grades w/GradeM.
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[2] 145 - (2 disks) Paint, draw w/Fingerpaint, design w/Altamira. ★
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[ ] 28 - Play Backgammon, or Wordplay (like wheel of fortune)!
[ ] 84 - Three solitaire card games, Spider, Klondike, Canfield! ★
[ ] 121 - Qubert, Pango, Centipede, Hopper (lk Frogger), more! ★
[ ] 151 - Hack puts you & trusty dog in a wild adventre (lk Rogue).
[ ] 176 - Destroy enemies w/Striker, conquer the world in Risk. ★
[ ] 215 - Solve, create own word puzzles with Phrase Craze!
[ ] 289 - 3-D Pacman, Kong, Spacewar, ABM (missile cmd). ★
[ ] 309 - Blackjack (you set rules), ArmchairQB, imperial war!
[ ] 321 - Star Trek, the origin'l Colossal Caves Adventure, more.
[5] 365 - (5 disks) Create your own grt adventure games. 384K.
[ ] 372 - Pinball, Othello, Dragons, Sopwith (fly one), battleship. ★

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[ ] 275 - A collection of invaluable general purpose DOS utilities.

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[ ] 74 - Trouble w/your landlord? Learn your legal tenant rights!
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EDITOR'S NOTE

A Vision Comes of Age

This past fall, in southern California, we hosted the first annual Home Office Computing Forum. As more than two hundred people investigating the growing home-office phenomenon assembled, one striking difference between this and most other conferences, conventions, and industry meetings hit home: new faces.

The wide-ranging interests of both the speakers and the attendees complemented the breadth of actual practitioners in home offices around the country. Joining us were representatives of hardware, software, and consumer electronic companies; telephone companies, electronic services, financial institutions and research organizations; catalog merchandisers, mass market and specialty retailers; reporters and writers, consultants, college professors, and a number of independent entrepreneurs.

A high spot for me, and for most others too, I am sure, was the keynote address by futurist Alvin Toffler, who placed the movement toward work at home in a social and historical context. Analyzing the "larger framework of events into which this phenomenon fits and out of which it grows," he identified "changes in the structure and distribution systems of knowledge and information . . . a revolution which alters power in the executive suite, in the factory, and in the home."

"The office," Toffler pointed out, "is not the most productive place to get creative work done. If you need an economy which requires high levels of innovation and creativity, you've got to provide the appropriate environment. The appropriate environment for that may not be an institutionally colored cubicle inside an office."

A decade ago, Toffler foresaw that our instincts to act individually would rise up against the post-World War II era's increasingly homogeneous trends in society. The popular view, painted by leading sociologists of the 1950s, was that we were going to become increasingly uniform, with the rise of technology adding to the sameness. "People no longer want to be considered as masses," stated Toffler. "People are increasingly individuals."

In "The Third Wave," written in the 1970s, Toffler spoke of the "electronic cottage," which he referred to at the meeting, stating, "The electronic cottage may not be the home. It could be a decentralized work location in the neighborhood. . . . But I think there will be an almost infinite number of patterns. . . . Some people will work at home one day a month, some people will work at home most of the time and come to the office periodically to meet with others. . . ."

Editor Claudia Cohl with keynote speaker Alvin Toffler at the first annual Home Office Computing Forum.

Countering those who identify working at home with social isolation, Toffler labeled their claim "a-historical. . . . The assumption," he said, "is that you don't have social contact if you don't work in a factory or an office.

"Does that mean," he asked, "that our ancestors, who never saw a factory or an office in their lives, had no social relationships? That's ridiculous; they did. But those relationships were in the village, in the community, and with the family. . . .

"What we might see, in a happy scenario, as work moves into the home . . . is that it becomes possible for you to put some of your energies into [creating] a more interesting and better community. . . ."

The overwhelmingly enthusiastic response at this meeting and the home-office movement as a whole have served to vindicate Toffler and to indict the critics who doubted his vision nearly ten years ago. But he noted that the numbers of people now working at home is "vastly greater than the largest number we allowed ourselves to imagine."

Claudia Cohl

CLAUDIA COHL
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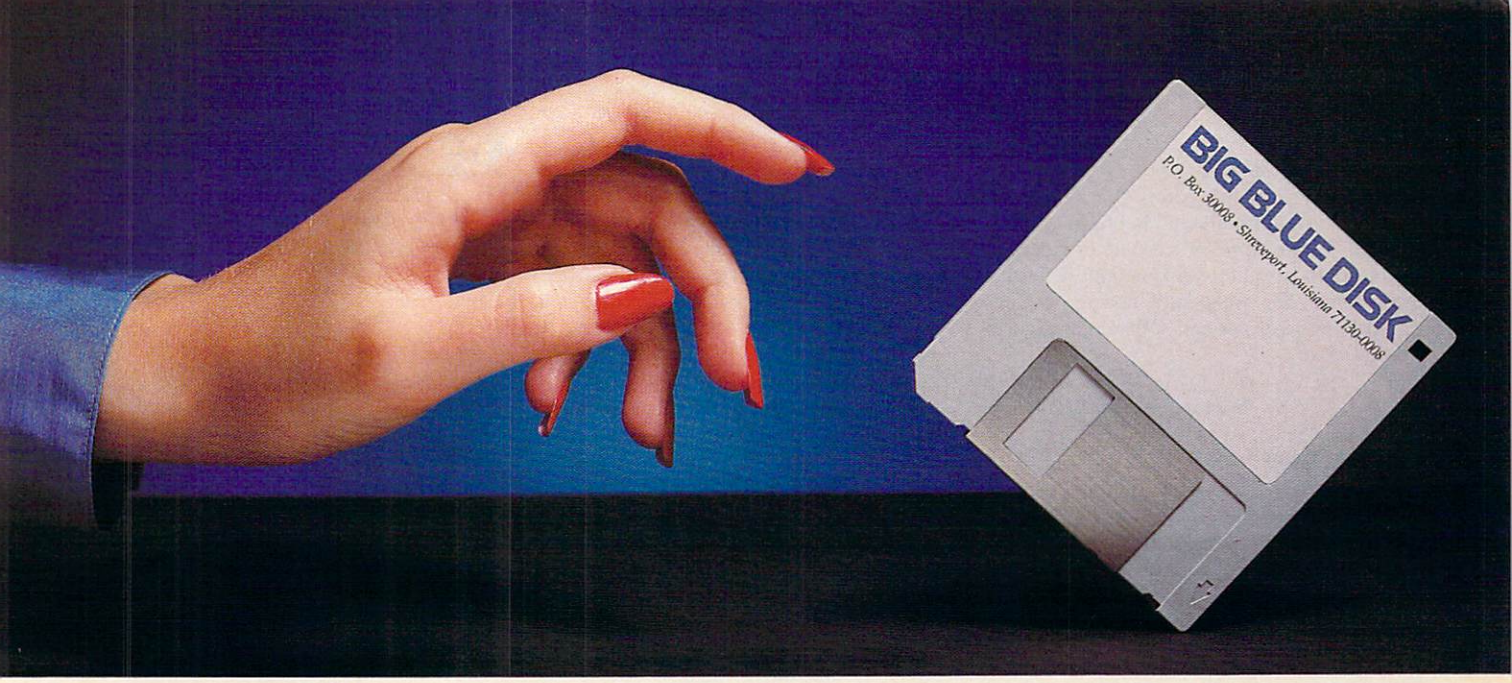

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LETTERS

NOTICEABLE CHANGE

I find the slow but perceptible change in emphasis from family and hobbyist computing topics to home-office and productivity subjects to be quite welcome and helpful in my work. The frequently updated buyer's guides on hardware and software are indeed informative.

V. SITARAMAN
Bontang, Kaltim, Indonesia

TALKING SHOP

In her August ShopTalk column, Joanne Pratt referred to an article entitled "How to Start a Word-Processing Business," which appeared in the November 1987 issue. How can I obtain a copy of that issue?

LINDA M. COOK
Littleton, Colorado

EDITOR'S NOTE: *Write to* HOME-OFFICE COMPUTING, *Back Issues, P.O. Box 717, Cooper Station, New York, NY 10276-0717. Enclose $4.25 for a single issue, $3.50 each for 5 to 10 issues, or $3.00 each for 11 or more.*

COMPUTERS AND THE DISABLED

I heard you on the Larry King Show with Jim Bohannon on September 21, when you mentioned a Carol D'Agostino in connection with an article on computers and the disabled. I would appreciate any additional information, leads, contacts, or back issues that would help those of us who are disabled get a start in setting up computers for working at home.

The working disabled comprise a substantial home work force that is often overlooked and underestimated, and you might consider giving regular coverage to this subject.

CAROL SHARMA
Bryn Mawr, Pennsylvania

EDITOR'S NOTE: *Ms. D'Agostino was profiled in "Job Training and Placement for the Disabled," on page 14 of our January 1988 issue. A list of resources appears on page 16. Back issues may be obtained by writing to the address given to Ms. Cook, above.*

For additional free information and referrals, you might contact ARTS Computer Products, 145 Tremont St., Suite 407, Boston, MA 02111 ([617] 482-8248).

VOTES OF APPROVAL

I have been reading your publication for two years now, and I want to thank you for a great magazine. My favorite section had been The Programmer, so I was disappointed to learn that section would be discontinued. However, as someone who has been looking into the possibility of starting a business at home, I appreciate the need for a magazine dedicated to the subject.

WENDY HENDERSON
Burlington, Ontario, Canada

I like your new format. I've been looking for a magazine that shows what can be done with a home-office computer. "The New Independents: 17 Who Live the Dream" in September was a great series of profiles—let's see more stories on people who have made it.

JOE GALVIN, JR.
Taylor, Michigan

EDITOR'S NOTE: *You'll find three such profiles in "It's All Relative" on page 64.*

INNATE INDEPENDENTS

Clearly, your "New Independents," profiled in the September 1988 issue, are more innately independent than they are computer-driven independents. Almost all these individuals would be entrepreneurs, even in the absence of computers. It was not their love of computers that drove them to pursue their present courses.

Although I have no desire to be an entrepreneur with my own business, I would like to be able to earn money at home, working with computers (I began programming in assembler and binary code in 1957). My question is, will your publication be dwelling on entrepreneurship, bringing computers in incidentally, or will you be broadening to cover ways to make money with a computer as the primary tool?

LOUIS DOOLEY
Ocala, Florida

EDITOR'S NOTE: *We will address people who use or want to add a computer for their work, including those operating computer-based businesses. Many of our articles, reviews, buyer's guides, and tips can be applied in any type of business and should be useful to you.*

CORRECTIONS

September 1988; The New Independents; page 47: Steven Hoge, the W. W. Norton "Sales Rep, Wired to Sell" would like us to restore 10 years to his life by printing his correct age: 27. Many happy returns, Steve!

September 1988; Home-Business Resources; page 30: An incorrect telephone number was printed under "Selected Publications and Media" for the United States Chambers of Commerce. The correct number for information is (202) 659-6000. For a list of publications, write: United States Chambers of Commerce, 1615 H Street NW, Washington, DC 20062. The USCC office also informs us that BizNet is a video-production facility, not a public bulletin board or information service, as several readers assumed.

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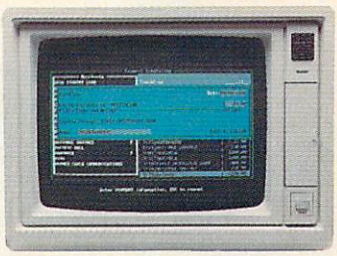

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CIRCLE READER SERVICE 24

Office in a Limo

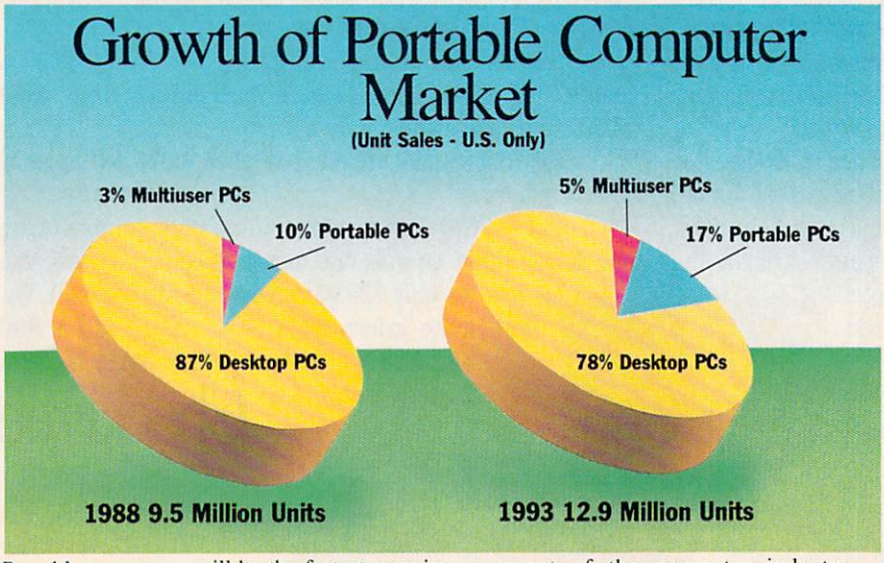
If money is no object, you can travel in the fast lane with Donald Trump, the Manhattan real-estate tycoon who has lent his name to a new line of limousines designed by Cadillac and Dillinger-Gaines Coach Works. The Trump Cadillac Limousine Golden Series costs $80,000 and is the ultimate high-powered, movable office for the businessperson who travels from meeting to meeting, holds limo pow wows, or who just wants to be noticed.

This office-in-a-stretch is touted as inconspicuous. But behind the tinted glass, you'll find Italian leather seats and rosewood veneer cabinets and desktops. A closer look will reveal a cellular phone with two handsets—one for the exec, one for the sec—an intercom system, a facsimile machine ($3,000 extra), and electrical outlets for computers. There's a stereo, television, and a VCR—all remote-controlled—and for those documents and scribbled notes that no one should see, there's a hidden safe and a paper shredder.

Cadillac has sold 38 limos so far and expects to sell twice as many next year. Who buys them? Mostly entertainers, stockbrockers, lawyers, and business executives. Trump, of course, got the first in the series.

—LISA WU

The Trump Cadillac Limousine Golden Series allows those who can afford it to take business on the road.



Portable computers will be the fastest growing segment of the computer industry through 1993, according to market research from Future Computing/Datapro.

IBM Enters $2,000 286 PC Market

The IBM Personal System/2 Model 30 286, introduced this fall, gives you the Model 50 Z's 286 chip for about half the cost. Most interesting is IBM's resurrection of the 16-bit expansion slot, commonly known as the AT slot, used in the now discontinued IBM PC AT.

It was only last year when IBM introduced the PS/2 line and put its AT slot to rest in favor of the MicroChannel Architecture (MCA). However, PC-compatible manufacturers continue to support the AT slot standard, and users continue to buy AT computers. So IBM is bringing back the classic AT bus.

The Model 30 286 comes with an Intel 80286 microprocessor running at 10MHz, 512K of RAM (expandable to 4MB on the motherboard), parallel, serial, VGA, and pointing device ports, and three open expansion slots. Two versions are available—one with a 3.5-inch 1.44MB floppy-disk drive for $1,995, the other with both the floppy-disk drive and a 20MB hard-disk drive for $2,595. A monitor is available at an additional cost.

This machine fills a hole in the IBM personal computer line. Until its introduction, IBM did not have a product to compete in the $2,000 80286 market; the only 80286 machines were the much higher-priced Models 50 and 50 Z.

The IBM PS/2 Model 30 286 costs about $200 more than a similarly configured Model 30 (with the PC-compatible 8086 chip), but it runs twice as fast. And the absence of the MCA slots in the Model 30 286 will make little difference to most users.

—STEVEN C.M. CHEN

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The Problem

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CIRCLE READER SERVICE 41

Compaq Deskpro 386/20e: Power Up, Price Down

Compaq, a personal computer industry leader in quality and performance, introduced the Compaq Deskpro 386/20e this past September, replacing last year's Deskpro 386/20. For about $2,000 less than the older model, the new Deskpro offers the same performance with one less free expansion slot. Basically, you get the same computer in a smaller box, a mouse port, and a built-in VGA. And the 386/20e has an updated look (similar to the Deskpro 386s) with a smaller footprint—occupying 30-percent less desk space.

Three configurations are available: the Model 1 (no hard-disk drive), Model 40 (40MB), and Model 110 (110MB), for $5,199, $6,599, and $7,999, respectively. Shoppers who have been discouraged by Compaq price tags in the past may want to give serious thought to the Compaq Deskpro 386/20e.

—STEVEN C.M. CHEN

What do sleeping in a kitchen in California, riding a male horse near a church while services are in progress in Kentucky, and using electricity to run a home business in Chicago have in common?

They're all illegal

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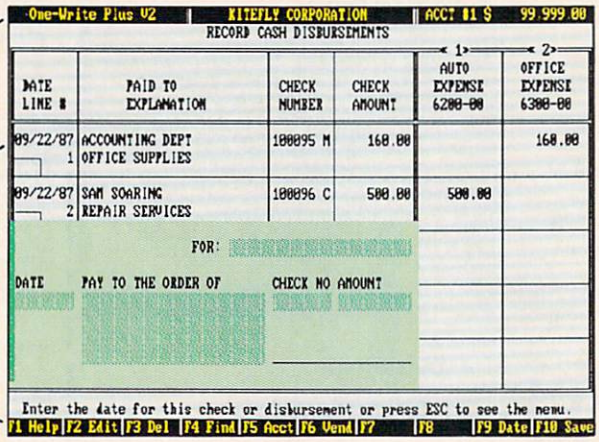

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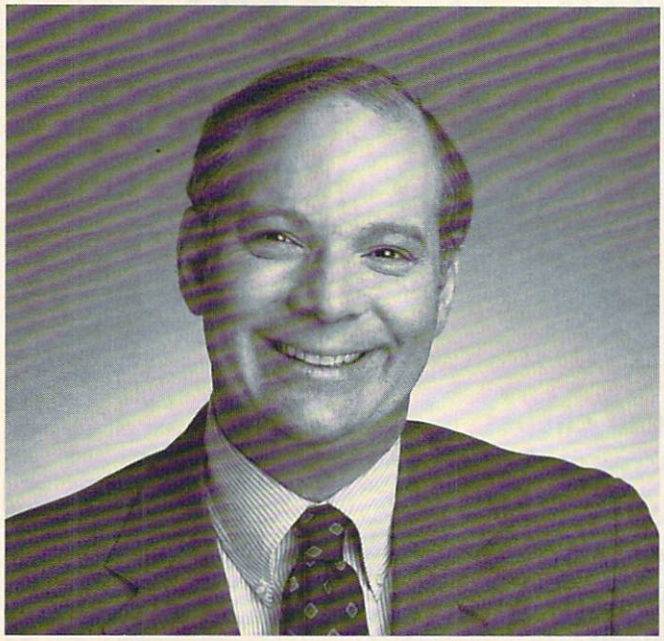

No matter where he is, Representative Benjamin L. Cardin, D-Maryland, is connected to his home office, his district office in Baltimore, and his Capitol Hill office. With his Motorola portable phone, "we know we can reach him at any time," says his press secretary.

Cardin works during the three-hour commute he makes each way to and from Washington, D.C., five days a week. In an average week, the Congressman makes about 20 calls with his portable. A few months ago, when phones on the hill went down for about two weeks, Cardin stayed on top of pressing matters by bringing his portable phone into the office. "It may have saved my political career . . . you never know," claims Cardin.

—LISA WU

Four-color Pizza with Pepperoni and Extra Cheese

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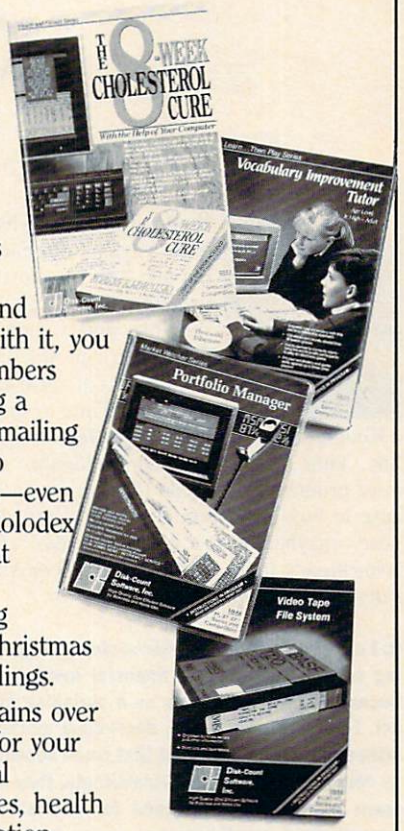

The program lets you keep track of names, addresses and phone numbers. With it, you can dial phone numbers automatically (using a modem) and print mailing labels. You can also produce directories—even pocket size—and Rolodex file inserts. It's great for many tasks, such as maintaining membership and Christmas lists and doing mailings.

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CIRCLE READER SERVICE 32

Answers to Questions on Finding Clients and Starting a CAD Business

BY JOANNE H. PRATT

Well, it's almost New Year's again—the end of the tax year for most of us. Time to add up your receipts and expenses while you can still take advantage of year-end planning. Time to set up a Keogh plan before the December 31 deadline. Time to ask if you can rationalize that laser printer you've been looking for an excuse to buy. My accountant said "no" last year—maybe this year he'll say "yes." *(For some money-saving tax tips, see this month's Finance department on page 40.)*

Q. I am currently a computer-systems engineering consultant for large financial institutions. Because I see those firms as a shrinking market, I am looking for new, developing markets. Although I found in the past that small businesses couldn't afford to hire consultants, they now seem to recognize the need for professional consulting. A small-business owner may have spent several thousand dollars on hardware and software and need help putting it to best use. How do I identify these potential clients? What would they be willing to pay for my help?

DALY REVILLE
New York, New York

A. It may seem surprising, but you already know many potential clients. Small-business clients are hard to reach by direct mail. The best way to identify them is by networking. Attend professional, social, and your children's school events. When you introduce yourself, state clearly that you are a computer consultant. Then you'll begin to hear the problems, and that's your cue to describe a similar problem that you have already tackled. Turn those friends and associates into clients by following up with a telephone call. In addition, *always* ask for referrals from your client list. Also seek referrals from the financial corporations that you've helped. Recommendations from members of prestigious firms carry a lot of weight.

People want to hire someone they can trust to help them at a reasonable cost. In my experience, there's a price ceiling of about

Small-business clients are hard to reach by direct mail. The best way to identify potential clients is by networking.

$1,000 for microcomputer consulting. (The going rate per hour varies across the country, but it's the total fee that you'll negotiate.) Clients may resist paying for training or setting up software templates, both of which would increase their staff efficiency and productivity. Convince them that your help will save them money.

Q. I am currently a CAD contractor, and I hope to open a CAD business in the near future. One service I plan to offer involves plotting drawings from customers' computer files and scanning drawings into files. How do I charge? The service is offered in a nearby city, but the owners of the establishment won't share business tips.

I would also like to publish a newsletter directed toward CAD operators and the small-business CAD user. Do you have any suggestions for either venture? Any suggestions on printers for those of us who wish to do technical word processing as well as graphics?

DEBORAH CARR
Greenville, South Carolina

A. To test your idea, write a detailed business plan with the help of an accountant. Get your competitors' prices by asking a friend to call for quotations on their various services. You also need to talk to architects, engineers, and other possible customers to identify the services they need and the prices they would be willing to pay.

You didn't say how much CAD equipment you already own. Your start-up costs may be high if you have to buy an expensive scanner or a $5,000 to $10,000 plotter to make the largest E-size (34-by-55-inch) drawings. As usual, I recommend a laser printer for professional word processing. But, if you can't justify the $1,500 to $4,000 expense of a laser printer while you are building your CAD business, you could start with the high-quality, low-priced ($300 list) Panasonic KX-P1091i 9-pin printer.

Publishing a newsletter is a good way to advertise your services. I know of several CAD newsletters mailed to architects—one published by a large reproduction shop and another by a software firm. Do your market research thoroughly so you'll know what information is already available.

BUSINESS OPPORTUNITIES

Not every home-based business brings customers into the home. Many businesses have offices in the home but serve their customers outside it. Here are two examples:

- Open a courier service that fills a market niche in your area. Some cities, for example, lack couriers to deliver medical specimens between doctors' offices or laboratories and the airport.
- Many organizations prefer to contract out tasks they used to do in-house. If you have a flair for the dramatic and unflappable organizational skills, offer a service planning corporate parties.

What do these businesses have to do with computers? You'll find your computer essential for such tasks as marketing, direct mail, bookkeeping, billing, and cost estimates. ■

SEND US YOUR HOME-OFFICE QUESTIONS

Send your questions on taxes, legal issues, developing a business plan, capitalizing, marketing and public relations, or any other business-related issues to business consultant Joanne H. Pratt, c/o Shoptalk, HOME-OFFICE COMPUTING, *730 Broadway, New York, NY 10003. Pratt is a nationally known researcher, consultant, and speaker on the subject of home business, and her clients include Xerox Corporation and the Small Business Administration. She regrets that she cannot give personal replies except through her consulting firm, Joanne H. Pratt Assoc., P.O. Box 190647, Dallas TX 75219.*

If you've ever worked in an office that had Ricoh products, or one that didn't, you know how important it is to have reliable office equipment.

But it's even more important when the business is your own. Which is why we treat your office just like any other major corporation.

Our Little Ricoh LR-1 personal copier comes with a replaceable cartridge, so it's easy to maintain. And with optional cartridges, it'll even copy in 5 different colors.

The RF-800 personal fax, like a person running his own business, is ready to handle different tasks. Naturally, it's got the important fax features you need, like transmitting a page in as little as 20 seconds. But even when it's not faxing, it's not idle. It's also a full-feature telephone.

But perhaps the most important features of our office products are ones we hope you'll never have to use. Walk-in service at authorized dealers, and a special phone number, **1-800-FAST-FIX**, which will bring repair service right to your office. Thanks to Ricoh equipment, that can be just about wherever you want it to be.

For more information, check the Yellow Pages for your local dealer, or call John Widlicka at 1-201-882-2258.

For years, Ricoh built office equipment to get people home sooner. Now we're doing something to keep them there.

RICOH

Ricoh Corporation, 5 Dedrick Place, West Caldwell, NJ 07006.

CIRCLE READER SERVICE 55

How to succeed in business without

Business isn't just 9 to 5 anymore. Ideas come quietly on weekends. Rush projects scream for overtime. And brainstorms strike at midnight.

Nor is business confined to glass-and-steel superstructures. Many entrepreneurs are operating out of brownstones and split-levels.

Of course, you can accomplish a lot more working in your home office if you're working on a Macintosh® personal computer.

The Macintosh is so easy to use, anyone can train themselves to be more productive in no time. And there are thousands of programs available to be more productive with. Two facts not lost on the growing number of *Fortune 500* companies now employing Macintosh.

Second-generation software like Word 3.0, Excel 1.5 and PageMaker 3.0 give Macintosh state-of-the-art word processing, spreadsheet and desk-

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leaving the house.

top publishing capabilities. Which gives you an executive secretary, a market forecaster and a personal publisher under one roof. Your own.

You can add an AppleFax™ modem that lets you send hard copy to any facsimile machine in the world. And hard disks that store over 10,000 pages.

Add an ImageWriter® LQ or LaserWriter® II printer to your Macintosh system and the pages you print in your home office can carry the impact of pages printed on Madison Avenue.

All this and you're still only steps away from the refrigerator.

To explore the Macintosh Home Office, call 800-538-9696, ext. 600. And find out why, for more and more people today, productivity begins at home.

The power to be your best.™

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CLINIC

Answers to Readers' Questions VDT Radiation... TV Tuners... IIGS & PCjr Upgrades

EDITED BY JEFF DONAHUE

EARTHQUAKE DAMAGE

Q. When an earthquake struck our city recently, my computer literally crashed. My Laser 128's (Laser Computer) power supply, which is connected externally to the AC adapter, broke when it fell off my desk onto the floor. Is there anyone who can help replace or fix it?

DARREN LEE
Rosemead, California

A. A call to Laser Computer's technical support number should do the trick. Due to your extenuating circumstances, the company told us it will repair or replace the power supply at no cost. Call its support line at (312) 540-8086, or write the company at 550 East Main St., Lake Zurich, IL 60047.

RADIATION CONCERNS

Q. I am interested in buying an anti-glare/lead-impregnated screen for my computer monitor. Do I really need this to reduce radiation? How much of a health hazard does radiation present?

MICHAEL ALISHAUSKAS
New Berlin, New York

A. Many reports have been published on the detrimental short- and long-term effects of working with VDTs (*see more on VDTs in the Up Front department of an upcoming issue*). Concrete answers, however, remain elusive, and the controversy rages on. In a presentation to the American Public Health Association, Dr. H. Janet Healer, who is affiliated with the Federal Program on Biological Effects of Electromagnetic Energy, noted: "It is becoming extremely difficult to isolate the benefit of electromagnetic energy from its potential risk. Consequently, even if the cost of precaution may eventually turn out to be unjustified, it highly outweighs ruthless self-confidence." Or, in the words of the old adage: "an ounce of prevention is worth a pound of cure."

Readers who are concerned about monitor safety should consider the following products:

The Professional Glare/Guard ($100, Lyben Computer Systems, Inc., 1050 E. Maple Road, Troy, MI 48083; [313] 589-3440) glass screen has a permanent optical coating to eliminate almost all VLF and ELF (very-low frequency and extremely-low frequency) radiation. It is mounted by means of Velcro strips and includes static control to minimize dust buildup and static shocks.

The NoRad dB60 Radiation/Glare Shield ($129, NoRad Corp., 1549 11th St., Suite 205, Santa Monica, CA 90401; [213] 934-2101) is even more protective than the Glare/Guard. Besides blocking over 99.99 percent of the electromagnetic energy coming from your monitor, the company claims the guard also takes care of all glare and reflection problems while dramatically boosting picture contrast.

TELEVISION TUNER

Q. I have upgraded my monitor and no longer need my perfectly good color monitor. Is there a tuner made that will convert my monitor to a color television set? I think Taxan made one several years ago; however, I have not seen them advertised recently.

LAWRENCE GRAY
Peoria, Arizona

A. Taxan TV tuners still exist. Two and a half years ago, Taxan (364 Montague Expressway, Milpitas, CA 95035; [408] 946-3400) discontinued its Model 305 three-band TV tuner ($100), which can connect to any composite color monitor, letting it work like a normal television and, in fact, producing the same quality picture as a standard TV. The tuner generates audio signals as well as video signals, and it has a selector switch that lets you choose between TV mode and computer mode. Though Taxan has discontinued the Model 305, several hundred units are still in stock. If you're still interested in purchasing one, give Taxan a call at the number above.

UPGRADING THE PCjr . . .

Q. I have been told that I can increase the memory on my 256K IBM PCjr to 640K by replacing the 64K chips on the sidecar with 256K chips. Is that all there is to it, or is there something else that must be done (besides using the expanded-memory software that came with the sidecar)?

KEITH RENSHAW
Minneapolis, Minnesota

A. Although the memory upgrade you are after is available, upgrading is not as easy as it sounds because the memory chips on the PCjr are soldered in place. Unless you are skilled with a soldering iron (and knowledgeable in computer repair and maintenance), it is *very* easy to damage both the older chips as you remove them and the newer chips as they are being installed. Your best bet is to contact your local computer dealership and have an employee do the upgrade for you. If no dealer will do this for you, call IBM's support number ([800] IBM-2468) for further assistance.

. . . AND THE APPLE IIGS

Q. I have an Apple IIGS and would love to increase its speed to about 16MHz. Can you recommend an upgrade board that will give me this speed, but also let me run programs at IIe and normal IIGS speed?

DOUG WELZEL
Cherry Hill, New Jersey

A. Unfortunately, the IIGS simply cannot get up to the speed you'd like. At its core, the Apple IIGS has a state-of-the-art, 16-bit 65C816 microprocessor chip, which operates at approximately 2.5 MHz. This is about the fastest that a IIGS can go. In lieu of a speed-up board for your computer, you might opt for a memory card that offers disk caching. This feature can make the software work faster without actually changing the computer's clock speed. Applied Engineering (P.O. Box 5100, Carrollton, TX 75011; [214] 241-6060) sells the GS-RAM card for $249 and claims that, among other things, the board will let most applications run up to seven times faster. As far as altering clock speeds, the standard IIGS Control Panel Accessory lets you switch over to 6502 emulation mode at any time. In this mode, programs requiring the 1MHz clock-speed of older, 8-bit Apple IIs (IIe, IIc, and II+) should function normally.

If you have technical questions or computer ailments that need diagnosis, our technical staff will try to help. Although we cannot answer each letter personally, this column will deal with frequently asked questions and common problems. Send your letters to: Clinic, HOME-OFFICE COMPUTING, *730 Broadway, New York, NY 10003.*

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Apple II Desktop Publishing

Low-Cost OCR Coming to MS-DOS

Tandy's Holiday Sale

New DOS 4.0 from IBM

APPLE II

BY CHARLES H. GAJEWAY

Want to trade your old II+ for a IIe? How about getting a real IIc instead of a clone? Maybe you need some peripherals or cables at a lower price than your dealer can give. You're in luck!

Reputable used-equipment dealers have been emerging in the secondary computer market. Pre-Owned Electronics in Waltham, Massachusetts, and Sun Remarketing in Logan, Utah, are two firms now offering full lines of reconditioned computers, peripherals, and parts at reasonable prices—and backing them with the same 90-day warranty that Apple offers on new machines!

Sun Remarketing really started the ball rolling when it purchased 3,500 Apple IIIs in 1985, and later bought all of Apple's leftover Lisas and Macintosh XLs. It refurbished the Macs and began selling what were formerly $10,000 machines as "Mac compatibles" for $1,000 to $1,600. The company has expanded and is now offering reconditioned Apple IIs, IIIs, and Macintoshes, plus printers, disk drives, and other accessories, as well as an extensive selection of Apple III-specific software.

Pre-Owned Electronics is smaller and younger than Sun, but offers the same 90-day warranty. Although Pre-Owned sells systems, it specializes in parts and service for older machines, and claims to charge at least 50 percent less than a typical Apple dealer. Pre-Owned buys used equipment, as well.

Desktop Publishing Software. Did you think that you needed a Mac or (shudder) an MS-DOS machine to do desktop publishing? Wrong, wrong, wrong—it was only a matter of time before DTP software would be developed for the millions of Apple IIs waiting out there. *Springboard Publisher* (Springboard Software, Inc.; $140), *Publish It!* (Timeworks, Inc.; $100), and *Personal Newsletter* (Softsync, Inc.; $60) will all work on a IIe, IIc, or GS, while *GraphicWriter* (Seven Hills Software; $150) is for the GS only.

Each program offers a different balance of features. *Springboard Publisher* has an impressive list (word processing, page layout, graphics creation) and works well on dot-matrix printers, but it is slow enough to bring you to tears. *Publish It!* is faster, but does not support as many printers, and is somewhat inconvenient to operate. *Personal Newsletter* is not a good text editor (you can import text from your favorite word processor, though), and is limited in terms of font selection and output quality. It is inexpensive, however, and the most recent update (version 2.0) offers headline fonts and LaserWriter compatibility. *GraphicWriter* is the only program that can handle color on the ImageWriter II. It can also use the LaserWriter, but it does not import graphics well. *GraphicWriter* would benefit from more control over text placement and spacing.

None of these programs is a clear standout, but they all enable the II to perform satisfactory, though not state-of-the-art, desktop publishing. Best of all, now that the ice is broken, we are sure to see enhancements: competitive releases will give us more features as well as easier and faster operation. Now it's up to you!

MACINTOSH

BY CHARLES H. GAJEWAY

Claris has finally shipped *MacDraw II* ($395; $200 upgrade from *MacDraw*, or $100 with Apple-labeled version), and it is a winner. The new program is a significant step up from *MacDraw*, which will remain on the market. *MacDraw II* features color capabilities, library files of reusable clip art, and the ability to work in a horizontal format.

Not everyone will need *MacDraw II*'s extra power, and while the upgrade is priced fairly, it's compelling only if you are considering moving up to a program like *MacDraft* or to entry-level CAD software. But take a look; Claris has done an excellent job.

Claris Buys Nashoba. Speaking of Claris, the company recently purchased Nashoba Systems, publishers of *File Maker 4*, a popular flat-file database program. Interestingly enough, this move also makes Claris an MS-DOS publisher, although it will probably sell off Nashoba's *Nutshell Plus* relational database program in the near future. *File Maker II*—its new name— should already be widely available under the Claris label.

Artistic Architects. Newly announced from Electronic Arts is *Studio/8* ($495), a color paint program for the Mac II aimed at architects, engineers, desktop publishers, and other graphics professionals. The program supports 256 colors, variable magnification, and a wide array of special effects, including the ability to use any brush you create.

Cricket Presents . . . Software. Emerging from the smoky mists of vaporware is Cricket Software's *Cricket Presents* ($495), designed to make the nasty job of integrating text, data, and graphs into effective presentation materials much easier. In addition to creating good-looking LaserWriter output, *Cricket Presents* can create color output from any Macintosh (SE or II and hard-disk drive recommended) and comes with a driver that will enable you to telecommunicate your work (via modem) to the nearest Autographix production center, which will produce high-quality color slides and return them immediately. I tried out a prerelease version of the package and found it a useful tool for any professional who frequently puts together presentations.

Turbo Mouse. Kensington Microware recently announced an enhanced version of its Turbo Mouse trackball. The new version sports a sleeker design and revised operation of the twin buttons. It lists for $170, and owners of earlier versions can upgrade for $60. Trackballs are great, especially on a crowded desktop, and there are several good ones on the market. Keep an eye out for a Mac trackball roll-off.

CHARLES H. GAJEWAY *can be reached on CompuServe* (ID: 73357,3577) *or on GEnie* (ID: C GAJEWAY).

IBM PS/2

BY HENRY F. BEECHHOLD

IBM denied reports of the existence of DOS 4.0 when it was reported in this column some months back, but the latest version of this operating system has finally been delivered—by IBM. It costs $150 for new users and $95 for PC-DOS users who wish to upgrade. The offer is good until April 28, 1989.

If you're familiar with earlier versions of DOS, you won't find version 4.0 startlingly different. The idea seems to be to provide a comfortable transition from PC-DOS to OS/2

...with the incredible HeadStart III.™

Incredible value.
An unprecedented package of FREE Software worth thousands of dollars and integrated peripherals usually offered as options are the essence of Vendex's concept of a dynamic, complete system. Headstart III is immediately productive, from the moment you open the box...all you have to do is add the electricity.

5¼" and 3½" Diskdrive Both Standard

Incredibly convenient. The The HeadStart III has two internal drives: a 1.2 megabyte, 5.25-inch and a 1.44 megabyte 3.5-inch, both standard. So you don't have to choose between the two, you use either, depending on your software.

Incredible performance. At the heart of the HeadStart III is a 12MHz 80286 processor with one megabyte of standard RAM, with the hard drive system delivering 32 megabytes of storage operating at 28 milliseconds with astonishing 1 to 1 interleave and a 32K buffer.

Plus, incredible expandability and support. The HeadStart III is designed for your future as well as your present applications, with four expansion slots for networking and the diverse peripherals already becoming available. With the HeadStart III, you're OS/2 ready right now. You can add two full megabytes of RAM, without having to buy any additional boards.

In addition, our PC Coach hotline is available to registered owners with questions about hardware, software or service.

To obtain more information about the HeadStart III and our full line of advanced computer systems, or to find the name of the nearest dealer call toll free **1-800-882-1888.**

You'll see, it really is incredible.

SPECIFICATIONS

MICROPROCESSOR: Intel 80286-12
SPEED: 12MHz/8 Switchable
BIOS: Award
BUILT IN RAM: 1 Megabyte
EXPANDABLE TO: 3 megabytes
POWER SUPPLY: 145 watts 110/220 switchable
KEYBOARD: 101 key PS/2 compatible
GRAPHICS: VGA Autosync
FLOPPY DRIVES: one 5.25" 1.2 megabyte, one 3.5" 1.44 megabyte
HARD DRIVE: 32.1 megabyte, 28 milliseconds, 1:1 interleave
BUILT IN INTERFACES: Parallel, 2- RS232 serial, mouse, joystick
EXPANSION SLOTS: 3 available
MOUSE: Standard
SOFTWARE: DOS 3.3, GW Basic, HeadStart Advanced Environment, Floppy Driver, Framework II, 3-D Graphics, ATI and Computer-EEZ Tutorial Software, Xtree hard disk manager, Publish-it! Chessmaster 2000, Splash VGA paint program, Bookmark, plus Twist and Shout.

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and, since the first thing you notice about OS/2 is its menu system, guess what? DOS 4.0 comes with a shell of the Microsoft *Windows* variety, right down to the pull-down menus. In fact, the *Windows*-like appearance of the DOS 4.0 display is expected to appear in the next version of OS/2. Since the shell is a utility program, you needn't use it if you prefer your DOS straight up.

While DOS 4.0 has an OS/2 feel to it, it does not directly support multitasking, though it can run *Windows* and similar programs. It does support the Lotus/Intel/Microsoft Expanded Memory Specification—a big plus—allowing direct DOS access to multimegabytes of memory above the now-minuscule 640K limit. It also frees you from the 32MB hard-disk partition limit. Thus, if you have a 130MB hard disk, you can use the entire disk in a single partition.

Should you upgrade? The talk is that 4.0 will be the dominant DOS for some time to come. OS/2 hasn't taken the world by storm, whereas DOS (in all of its earlier versions) is running on over 25 million machines. So, unless you specifically want what OS/2 has—multitasking, for example—DOS 4.0 looks like the right choice.

DOS 4.0 will run on any MS- or PC-DOS-compatible computer. Your present inventory of software is safe, and I suspect that a lot of software developers are breathing easier: Fine-tuning programs to run on a compatible DOS is a lot easier than the complete overhaul needed to take advantage of OS/2.

Is Your AT Losing Its Mind? The basic system configuration of IBM PC AT computers is held in an EPROM chip on the main board. When the computer is turned off, this ROM is kept alive by a built-in battery, which also powers the clock/calendar. The battery is usually, though not necessarily, a long-life lithium cell that recharges when the computer is powered up. But even lithium cells die eventually. When the battery fails, the configuration data vanishes and the computer asks you to reconfigure it with the dreaded words "INVALID CONFIGURATION. RUN SETUP." So it's back to the DOS manuals and software. Ugh! Who needs this?

To avoid the hassles, you need a longer-lasting battery system. AT-LAST (Princeton Computer Products; $49), a NiCad pack, will function as long as 150 days without recharging. Under normal use, it should still be operating when you trade in your computer. In fact, the manufacturer claims a 12-year life for the product. The pack comes with Velcro stick-ons for installation anywhere inside the computer box.

HENRY F. BEECHHOLD *is the author of* The Brady Guide to Microcomputer Troubleshooting & Maintenance *(Brady Books, Prentice Hall Press, New York).*

MS-DOS

BY STEVE MORGENSTERN

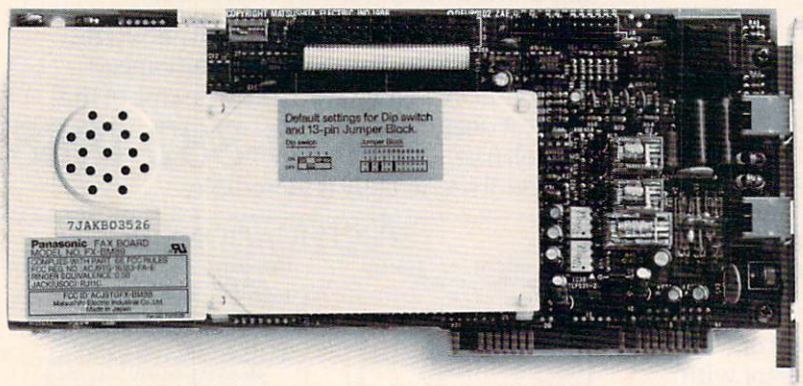
Looks like we're on the verge of a breakthrough in affordable, practical, optical character recognition (OCR). This is the technology—combining a scanner and OCR software—that enables a computer to read information directly from paper and isolate and translate individual characters.

The process is simple enough. You put the paper into a scanner, which translates the page into a pattern of on-and-off, black-and-white bits. Then the OCR program interprets the patterns these bits form and figures out which characters are which.

Accuracy has been one problem with OCR. A bigger problem has been the restrictions on the kinds of documents OCR systems have been able to read. They've performed adequately with single columns of text in a very small selection of typefaces. But if you try to get these OCR systems to read a multicolumn magazine page, or a page with both graphics and text, or anything set in proportional type (in which the letters have different widths), you'll get nowhere. The only system that even came close was the Discover 7320, an "intelligent character recognition" system from Kurzweil Computer Products that costs more than $10,000.

The Panasonic Boom: the next generation in business.

"If a fax board gives my PC fax capability, I'll take it. If I have to stop everything just to fax, you can keep it."



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Copiers, Typewriters, Printers, Peripherals and Facsimiles.

You buy a fax board so you don't have to stop what you're doing. But what if it makes you?

The Panasonic® FX-BM89 Plus Fax Partner™ won't. Because ours has true background operation.

Just plug it into an expansion slot on your IBM[1]-compatible PC, and you can send documents directly to any Group III fax station. Or receive them. Without a pause.

Like the most sophisticated facsimile machines, the Fax Partner can be programmed to send or poll for messages automatically at specific off-peak phone hours (a real money-saver).

It can also be programmed to send documents to multiple locations (a terrific time-saver).

The Fax Partner is compatible with most popular printers, word processing software, and Image Scanners.

And since you don't need special hardware (or software) to use it, it's simply plug and play.

Maybe that's why, according to Info World, "it far outstrips the competition."[2]

The Panasonic FX-BM89 Plus Fax Partner. One of many ways we're making our name felt around the office.

For the name of your nearest dealer, call toll-free 1-800-PIC-8086.

1. *IBM is a registered trademark of International Business Machines Corporation.*
2. *Barbara Clifford and Sally J. Price, "PC FAX BOARDS," Info World, April 25, 1988.*

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But suddenly low-cost, high-capability OCR systems are appearing. At the MacWorld exposition in Boston this summer, Caere Corporation representatives fed magazine pages into a scanner employing its *Omnipage* software. Multiple columns of captured text appeared on the Mac's screen. The MS-DOS version of this software (and a board that fits into expansion slots on XTs and up) should be out by the time you read this for $2,495 (not including the scanner).

Palantir Software is expected to announce a similar program in the same price range for PC compatibles. And Inovatic already has a $4,500 system called *Readstar II Plus* for 80286- and 80386-based MS-DOS systems that can reportedly scan up to 9,000 characters a minute.

We have hit one of those points in the technological cycle where prices go down substantially while the quality improves. Don't you love it when that happens?

Moving text from the printed page into computer memory is valuable to anyone who reads a lot and then must juggle that information. It sounds like a wonderful dream—a dream that is rapidly becoming a reality.

More Coming Attractions. One of the most powerful graphics programs available for the Macintosh should make the leap over to MS-DOS machines any day now—and not a moment too soon. *Adobe Illustrator 88* is an extraordinarily sophisticated tool for creating and manipulating PostScript graphics images, an area where there have been few MS-DOS programs. Now Adobe Systems is hard at work creating an MS-DOS version to run under Microsoft's *Windows* environment. With luck it will be available this year.

MicroChannel Quotes. Being skeptical is part of my job. So when IBM introduced MicroChannel Architecture in its PS/2 computer series as a replacement for the popular AT bus, I asked "Why?" When I heard that a handful of manufacturers had announced MicroChannel-compatible machines, I asked "Why?" again.

Many others are skeptical about this issue. But imagine my surprise when I found out that one of them is John V. Roach, chairman of the board and president of Tandy Corporation, manufacturer of its own Tandy 5000 MC MicroChannel computer!

That's the way it was reported by Peter H. Lewis, computer columnist for *The New York Times*. According to Lewis, a Tandy spokesperson commented that orders for the MicroChannel machine were "disappointing," to which Roach replied, "I don't think it's been disappointing at all. I'm surprised anybody would want it."

STEVE MORGENSTERN *can be reached on CompuServe* (ID: 72545,606).

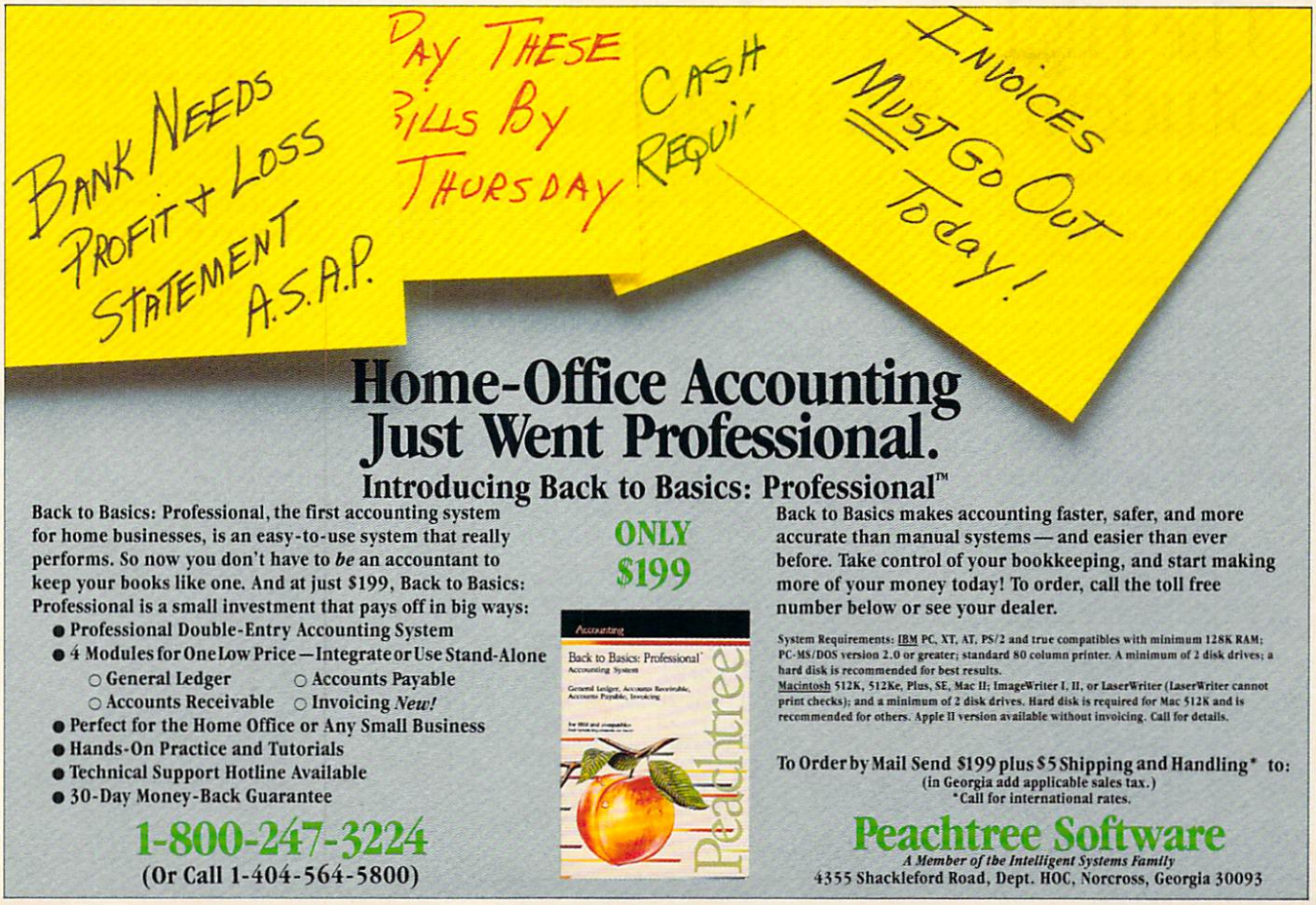
TANDY

BY STEPHEN MILLER

Tandy's annual holiday computer sale is in full swing, and will continue through December 24. This year's holiday bargains include:

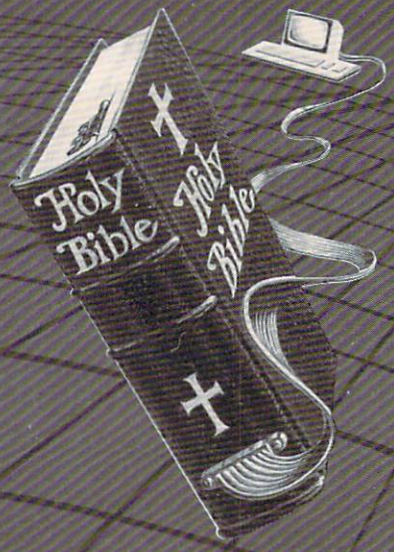
- The Tandy 1000 HX for $499, which is $200 off the regular price.
- The Tandy 1000 SL for $799 ($100 off).
- The Tandy 1000 TL for $1,099 ($200 off).
- EX and HX owners who buy the PLUS memory-expansion card ($150) will receive a free copy of *DeskMate 3.0*, which regularly sells for $100.
- The Tandy 102 laptop (the 32K version) for $499 ($100 off).
- The DMP-132 dot matrix printer for $270 ($110 off).

Accounting Bug. If you're using or plan to use *DacEasy Light Accounting*, be aware that you may have a problem running it on the Tandy 1000 line. The first release of the program had a bug specific to the 1000. Dac Software quickly fixed the problem and will provide an upgrade for registered Tandy 1000 owners. Check the file called LIGHT-.EXE on the program disk; if it is dated before January 1988, you have the buggy version. Call Dac Software ([214] 458-0038) and ask for customer support. The company



CIRCLE READER SERVICE 54

New dimensions in Bible study.



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The most comprehensive and the most used Bible study program. Version 4 includes the text of the NIV, RSV, KJV or NKJV Bible for just $199.95. You can search for any word or text string and build indexes to record your study.

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will send you a new program to fix the problem.

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The +/- Key Problem. Tandy 1000 owners (of machines made prior to the TL and SL) are once again faced with the problem of a major category of products that use the + and - keys on other compatibles' keypads. Several of the so-called Personal Information Managers (PIMs) have command structures based on using those two keys. PIMs are an improvement on predefined activity trackers (see "Keeping Track of Thousands of Details," July 1988 issue) and could be a boon to small businesses. Among the major PIMs are Lotus's *Agenda*, Symantec's *Grandview*, Valor's *Info XL*, and Persoft's *IZE*.

Fortunately, there are several ways for Tandy 1000 owners to overcome the +/- key problem. One is to use a keyboard redefinition program such as *SmartKey* to reassign seldom-used keys. The best two keys for 1000 owners are the F11 and F12 keys. (Until recently, most programs—except *DeskMate*—didn't even recognize these keys, so they work well.)

You can also get a public-domain program called *Greynum*, available on CompuServe in the Tandy Professional Forum (under filename GREYNU.ARC in Library 5). This memory-resident program takes up only 95 bytes.

Ideally, software companies would provide a fix. Microsoft *Word*'s outliner had the same problem, but Microsoft solved the problem by assigning the Alt-7/8 key combinations as the +/- keys. ■

STEPHEN MILLER *can be reached on Tandy's PC Link on-line service* (ID: PCSTEPHEN) *where he hosts the hardware forum.*

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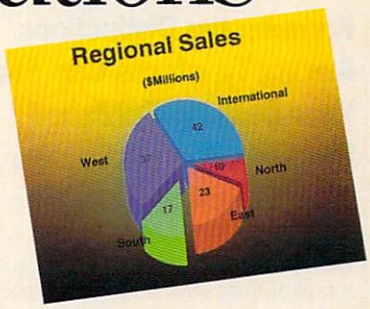

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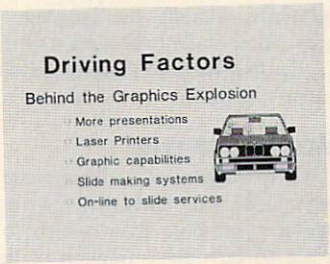

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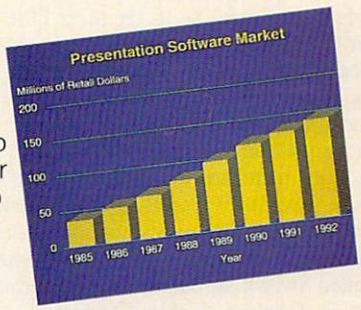

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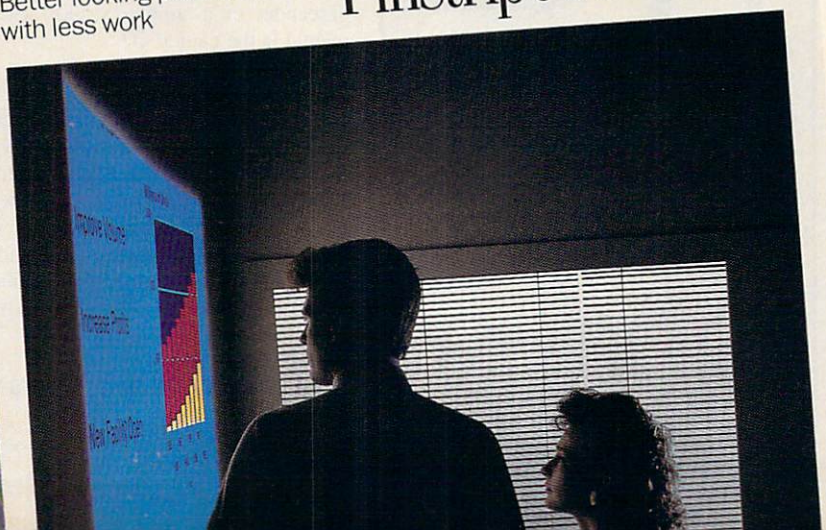

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CIRCLE READER SERVICE 59

Terms of Type (Part II)

BY STEVE MORGENSTERN

Knowing the Distinctions Among Typefaces Can Make Your Desktop-Published Products More Attractive And Effective

After last month's exploration of such desktop-publishing terms as picas and points, ems and ens, and typefaces and fonts, let's look this month at some more typesetting concepts and terms—chiefly the language of typefaces. For in order to be a good type consumer, you first have to discern the differences among typefaces.

TWO TYPES OF TYPE

When working with commercial typesetting houses, a designer may have a thousand typefaces or more from which to choose. While so far only a fraction of these have been adapted for laser printers, the variety is impressive—and at times daunting. How do you distinguish among typefaces?

First, split them into two groups. On one side is *serif* type. Serifs are those little decorative lines and curves at the ends of letters. The most commonly used serif type in desktop publishing is Times (called Dutch in some forms); this article, for instance, is set in Times Roman.

Then there are the faces without serifs, called *sans serif* type ("sans" is French for "without"). The most familiar of these to desktop publishers is Helvetica (sometimes called Swiss); the subheads in this article are set in Franklin Gothic Condensed, a sans serif type.

Tradition holds that serifs help hold a block of text together visually, making it easier for the eye to follow along the line of type. Thus, serif type is used frequently for lengthy blocks of text (often called *body copy*), while sans serif is used for heads, subheads, captions, and short text blocks. That's tradition, of course, not law (although if you want a very modern look, you might still choose sans serif type for body copy).

BOLD, ITALIC, AND CONDENSED TYPEFACES

Next we'll look at the weight of the characters—that is, the thickness of the lines that make up the letters. Here again, commercial typography provides more variety than laser type. Letters with thicker lines are called *boldface*. There may be six or more gradations of boldness available in a commercial typeface family such as Garamond, from light to ultra bold. So far, we are limited to a single bold version for most laser-based typefaces. Some bold laser fonts are darker than others, though, and this may be a reason to choose one font over another for a given project. Boldface type is best used for subheads (as in this article) or for other forms of emphasis.

The forward slant in type—called *italic*—is another distinction. Frequently there is more variation between the italic versions of two different typefaces than between the standard—or *roman*—versions of the same typefaces, particularly with serif type. If you are planning to use a lot of italic type in a particular job, you might choose your typeface based on the look of its italic.

Many typefaces also come in a *condensed* version, in which the width of the letters has been compressed. No condensed fonts are included in the basic typeface packages delivered with today's laser printers, but they're available as downloadable fonts. Condensed faces are frequently useful if you need to fit more letters into a narrow width, particularly for headlines and subheads (the subheads here are condensed).

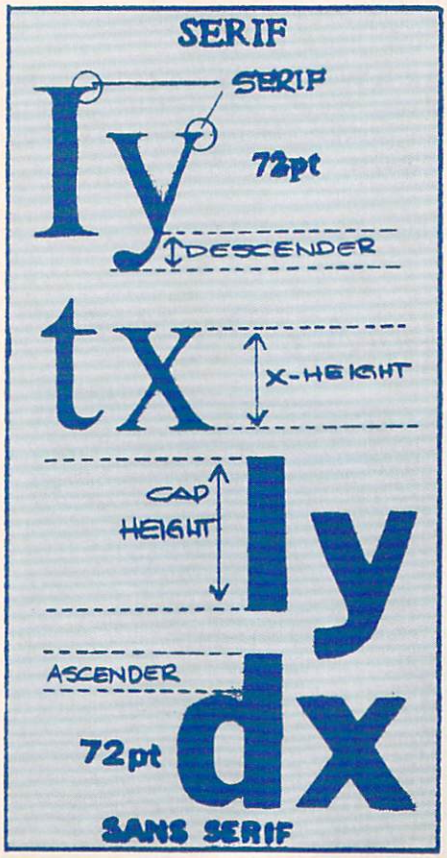

ILLUSTRATION BY REX MATERNIS

THE VISUAL TERMINOLOGY OF TYPEFACES

A closer look at the shapes of the letters will reveal subtle but significant differences among typefaces. In order to pick the best typeface for the job at hand, here are a few points to look for when you *spec* (short for "specify") type.

- *Variation in letter shapes between thinnest and thickest points.* This differs considerably from typeface to typeface and contributes a great deal to their personalities. Knowing the differences in letter shapes helps you make the best impression with your work.
- *Point size of a typeface based on the height of lowercase letters.* The lowercase letters of different faces differ in height in proportion to the capitals. Lowercase letter size is referred to as *x-height*, since "x" is a convenient letter to measure, without *ascenders* (such as the vertical line in a "b" or "d") or *descenders* (the part of a "p" or "g" that's below the rest of the letters). A typeface with a large x-height will appear larger on the page than a smaller x-height face, even when both are set in the same point size.
- *Different shapes of serifs.* Some, such as Times, are finely curved (a *bracket* serif). Others, like Rockwell, are squared off (*slab* serifs), or triangular (*wedge* serifs, as in Palatino), or simply a fine line (*hairline* serifs), such as Modern. Note that some serif shapes are more clean-cut (bracket or triangular), and others are more ornamental (hairline).
- *Design distinctions.* When you look closely at type samples, you'll start to spot design distinctions quickly. How round are the counters—those open areas in the B,R,P, etc.? Does the lowercase g have a circular descender or a simpler stroke? How ornamental is the capital Q?

These "closer looks" are more than an interesting exercise; they're the key to typographic detective work. One way to create attractive typography is to find examples of professional design you admire, and "inherit" the type specs for your own work. By minding your p's and q's (and other telltale letters, such as lowercase a, f, g, and y), you should be able to compare printed material to samples of type in a catalog and make the identification.

FINAL SET TYPE OR JUST PROOFS?

If you are making up pages on your personal computer and proofing on a laser print-

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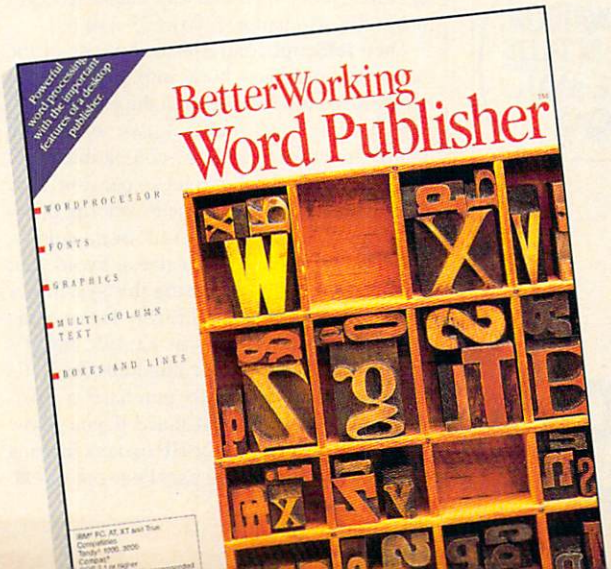

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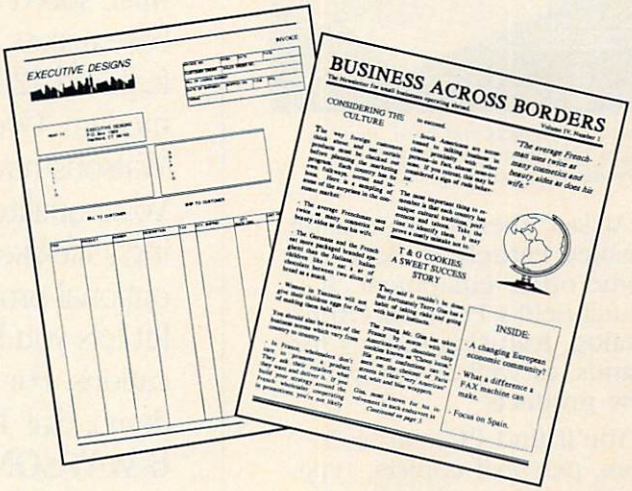

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CIRCLE READER SERVICE 48

er—but plan to have your files output on commercial typesetting equipment for final camera-ready mechanicals—be especially aware of the differences between laser type and high-resolution commercial type.

While you will get close to the same line breaks and column lengths from both output devices, if you've done everything properly, the look of the pages may be substantially different. Typefaces designed for commercial typesetting equipment take advantage of their higher resolution. The difference between laser-printed type and commercial type is especially noticeable in lighter text faces, such as New Century Schoolbook; the commercial typesetter can produce much finer lines, and the difference between the thick and thin parts of the letters will usually be more substantial. The jump from laser-printed bold faces and their higher-resolution versions is less dramatic.

One of the best ways to create attractive typography is to find examples of professional design you admire, and "inherit" the type specs for your own work.

The moral for those of you pursuing this course: get a type sample from your typesetting service bureau before finalizing your design and have a sample page or two run off before outputting a lengthy project.

PRODUCT NEWS AND NOTES

You bought a Hewlett-Packard LaserJet Series II, and now you feel you need PostScript capability. You could try to sell the LaserJet and buy a new printer—but there's an easier, less expensive way thanks to QMS in Mobile, Alabama ([205] 633-4300).

Their **JetScript** controller makes use of the expansion interface built into the LaserJet Series II to add PostScript to the printer. The JetScript package includes two expansion boards—one for your IBM-compatible computer, one for the LaserJet expansion slot. The system uses the genuine PostScript printer control language licensed from Adobe, and installation of JetScript doesn't void your HP warranty. I've been using this system for several months now and heartily recommend it. The list price is steep at $2,495, but it's often sold at discount for hundreds less. It's still more economical to purchase a PostScript printer in the first place if you know that's what you want. For HP owners looking to upgrade, this is an excellent option. ■

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CIRCLE READER SERVICE 60

Making Long-Term Business Decisions

BY ROB KRUMM

A Spreadsheet Can Be Your Adviser in Forecasting Future Trends

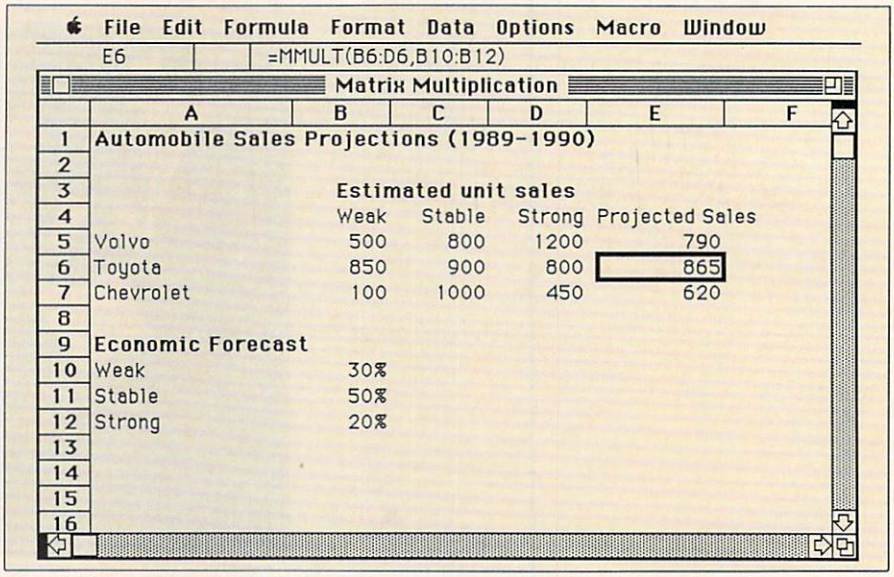
Often named as the father of the modern computer, John Von Neumann created the stored program concept in which a single bank of memory stores both the program's instructions and its data. This concept—of storing instructions in memory—lets us program a computer. Before Von Neumann's work, electronic computers were hard-wired for specific applications in the same way pocket calculators are dedicated to calculating without the ability to load new and varied programs.

Von Neumann seems to have been an arrogant genius who offended as many people as he impressed. In his book, *The Ascent of Man*, mathematician Jacob Bronowski describes the time Von Neumann tried to explain a problem's solution to Bronowski. Though Von Neumann said the answer was obvious, Bronowski was visualizing the problem in such a way that he just couldn't understand it. Working late that night, Bronowski solved the problem and saw that Von Neumann had been correct. Delighted by his discovery, Bronowski called Von Neumann, who replied, "You woke me up to tell me I was right. Please wait until I'm wrong!"

Given this hard-nosed reputation, it might seem odd that what many consider Von Neumann's greatest mathematical contribution came in the area known as *game theory*. Von Neumann believed that you could use mathematics to analyze such familiar processes as bluffing in a poker game. Although Von Neumann never completed his work on game theory, he opened new areas of human activity to mathematical analysis—and not just for fun. For just as a good poker player makes choices—based on probabilities—that affect the outcome in a card game, so do the choices a businessperson makes affect the probable outcome of any business plans.

HOW "GAMES" HELP YOU WORK

For a glimpse of what Von Neumann had in mind, let's look at a simple example of game theory, now more commonly called *decision* theory. It also provides an opportunity to show in action *matrix multiplication*, a relatively new spreadsheet feature that's useful for making a decision based on various probable scenarios.



By multiplying estimated sales figures by the percentage probabilities for a weak, stable, or strong economy, a spreadsheet may help you intelligently project sales for any product.

Imagine that you run an automobile dealership that sells three brands of cars, one domestic and two imported, and that your profit per car sold is approximately the same for each. You must decide which type of car to stock most of in your inventory over the coming two years: Chevrolet, Toyota, or Volvo. Your research on automobile sales in recent years indicates to you that the economy's overall condition may influence the type of car people buy. If the economy is strong, higher-priced autos like the Volvo should sell well. If the economy is stable, less expensive cars such as the Chevrolet will probably sell better. If the economy is weak, consumers tend to buy Toyotas, feeling that their excellent repair records and reasonable prices make them a safer bet than the other brands.

The figures gathered from the past can be summarized in what is called a *payoff* matrix (a matrix is a rectangular arrangement of numbers into rows and columns, like a spreadsheet). The figure shows an *Excel* worksheet in which a payoff matrix has been entered. Columns B, C, and D list the three possible states of the economy: weak, stable, and strong. Rows 5 to 7 list the three product lines: Volvo, Toyota, and Chevrolet. The matrix is then filled in with values for estimated unit sales under each circumstance. If the economy is weak and you stock up on Volvos, unit sales are estimated as 500. However, if the economy is stable and you put most of your inventory money into Volvos, you can estimate sales of 800 units. The values for Toyota and Chevrolet automobiles reflect similar estimates.

According to these projections, what should you do? The answer can be determined by creating a second matrix that holds the relative odds for the probable states of the economy. This is called the *probability* matrix. Suppose that this month you see in several business magazines predictions by respected economists about the state of the economy for the coming years. You can use this information to fill out an economic forecast in the probability matrix, as shown in the bottom left side of the figure.

HOW TO AUTOMATE DECISION MAKING

How do you find the best option to pursue? By multiplying the payoff matrix by the probability matrix. In many spreadsheets—such as *Quattro*, *Excel*, and Lotus *1-2-3* (Release 2 and higher)—matrices can be multiplied automatically. The *Quattro* command is /A(dvanced) M(atrix) M(ultiplica-

ROB KRUMM *has written several computer books, including* Using Lotus 1-2-3 for Business *(Addison-Wesley).*

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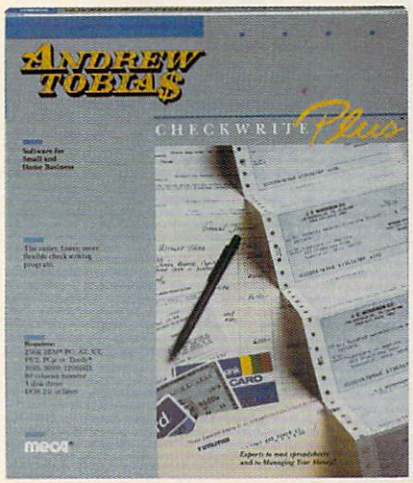

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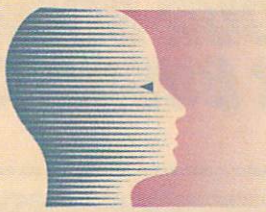

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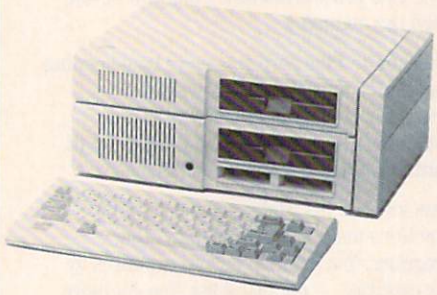

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tion), or /AMM. In *1-2-3* the command is /D(ata) M(atrix) M(ultiplication), or /DMM. The *Excel* function is =MMULT(), for matrix multiplication. These commands multiply each element in the payoff matrix by the corresponding values in the probability matrix to create a third matrix that totals the figures. Although done automatically with the matrix multiplication function, here's how each formula actually works:

500.30 + 800*.50 + 1200*.20 = 790 (Volvo)*
850.30 + 900*.50 + 800*.20 = 865 (Toyota)*
100.30 + 1000*.50 + 450*.20 = 620 (Chevy)*

For example, the Toyota formula essentially reads, "Multiply estimated sales in a weak economy (850) by the odds for a weak economy (.30, or 30 percent). Do the same calculation for a stable economy (900 times 50 percent) and a strong economy (800 times 20 percent), and add up the three derived figures. Your result for Toyota vehicles is 865, the probability outcome." The formulas for Volvo and Chevrolet read similarly. If your spreadsheet does not perform matrix multiplication automatically, you can achieve the same results by writing spreadsheet formulas to perform the arithmetic calculations indicated above.

Just as a good poker player makes choices—based on probabilities—a businessperson makes choices that affect the probable outcome of any business plans.

Column E in the figure shows the outcome of the calculation. In this case, the best strategy under the conditions described by the matrices is to put most of your inventory money into various models of Toyota cars. Of course, you can still have a gut feeling that Volvos will be the best bet no matter what the worksheet says.

While often used in fields such as engineering, additional business uses for matrix multiplication include forecasting sales for service-based, as well as product-based, businesses and figuring out production costs for items where there are several variables (such as cost of raw materials, labor costs, and the time it takes to produce the items). Decision theory clarifies and quantifies the process of making decisions. By using a spreadsheet to structure your decision, you can automate what might otherwise be a tedious procedure. ■

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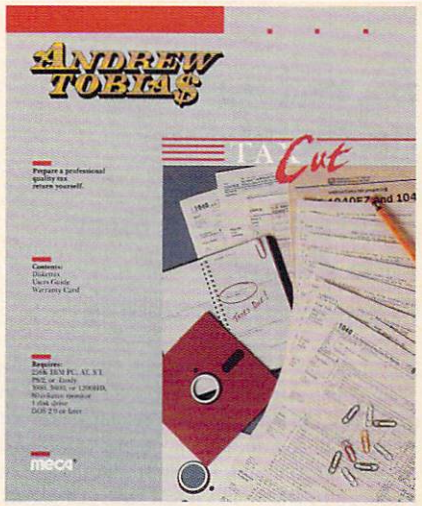

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CIRCLE READER SERVICE 44

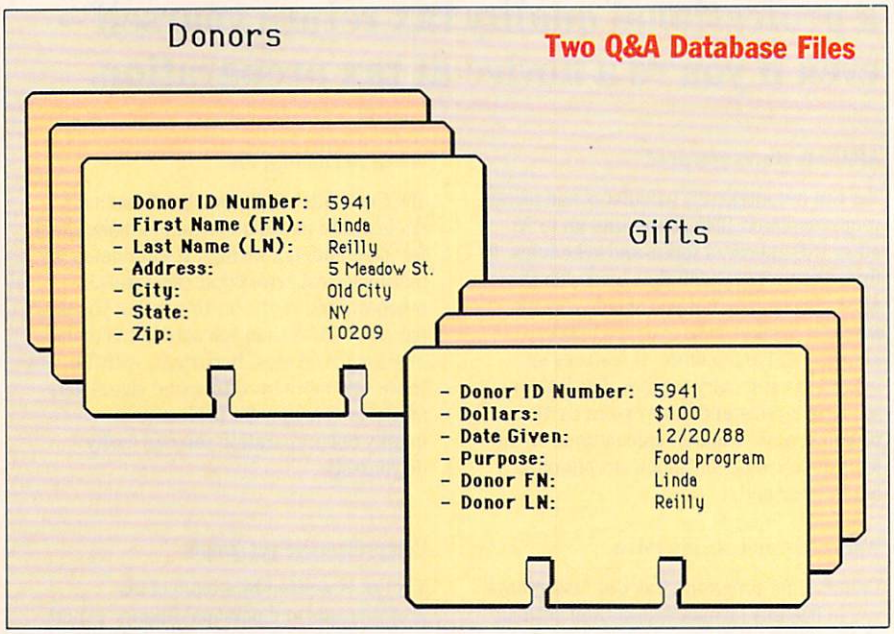
Getting the Most from Q&A

BY RON MANSFIELD

This Powerful, Flat-File Database Helps You Merge Information from Many Files Without Complex Programming

Some things get better with age, like red wine and a few of my favorite software packages. Take Symantec's *Q&A*, for instance. This combination database/word processor was a breakthrough product when introduced in 1985, and it has received regular enhancements ever since. The most recent release, version 3.0, solves many of the program's remaining problems.

Perhaps the most intriguing new feature, one that sets it apart from other flat-file databases, is *Q&A*'s powerful @XLOOKUP function, which lets you combine information from two or more data files. You don't even have to learn a complex database programming language—as you would, for instance, with *dBase III Plus* or *R:Base*—to manipulate your information.



The two records above represent two different Q&A database files—Donors and Gifts. Because they share a common field ("Donor ID Number"), the contents of the other fields can be copied from one file to the next using the program's @XLOOKUP function. In the example above, first and last names are pulled from the Donors file into the Gifts file, without typing them in twice.

SOPHISTICATED DATA HANDLING

With @XLOOKUP and some imagination, you could develop a simple mail-order entry and invoicing system that locates and fills in prices on an ordering screen and invoice. It might also adjust a separate inventory database, fill in shipping addresses from a third database, and track customer ordering habits in a fourth.

The @XLOOKUP function can also help hide confidential information from prying eyes while making it available to authorized users. To do this, you might simply split each employee's personnel information into two databases—one with general information such as names and job titles, and another with confidential information such as salaries and medical histories. By using a common employee number in both databases, and by password-protecting the confidential database, you could have *Q&A* display and print the private information only when run by authorized users. Casual users would see just the general records.

RON MANSFIELD *is an author and president of the Pasadena-based consulting firm Mansfield and Associates, which he started at home in 1983.*

STRATEGIES FOR WORKING WITH *Q&A*

While *Q&A*'s @XLOOKUP function doesn't give you the true relational flexibility of such programs as *dBase III Plus*, it goes a long way in that direction without compromising speed. You won't need a degree in computer science to set up *Q&A* databases, either. However, there are some strategies, tricks, and traps to consider when working with the program. This column will explore several helpful schemes by using a simple example based on some consulting work my company did earlier this year.

Suppose you want to help a charity manage its mailing list and track incoming donations in detail. Naturally, you could have one record for each donor, containing his or her name, mailing information, and donation history. But when designing the system this way, you would need to guess in advance how many separate donations the most generous donor would make in a lifetime, and then include enough donation fields—Donation 1, Donation 2, Donation 3, and more—to deal with the most frequent giver. But besides wasting disk and screen space, this approach creates some reporting problems. For instance, it would be difficult or perhaps even impossible to subtotal all gifts by month, since gifts from the same month might be in different fields in each record.

A second approach would be to create a new record each time a donor gives a gift. Each record would contain the donor's last name, first name, address, and information about the latest gift.

Entering all the donor information each time a gift was received would solve one problem while creating others, such as the possibility of introducing errors when entering recurring information like first and last names. If you planned to list all of the donations from each person, you'd also need a separate field containing each donor's full name (last name first) because deriving subtotals with *Q&A*'s reporting function requires a single field for sorting and selecting records. And you had better always enter "Adams, John" as opposed to "Adams, J" or "Adams, J." for consistency's sake. Moreover, you'd have further problems if two donors had the same name.

To get around these limitations, you might set up two separate *Q&A* databases and assign ID numbers to each donor. The first database might be called Donors and would contain the names and addresses of donors. There would be one—and only one—record for each donor. A second database called Gifts would collect information about trans-

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HOW *Q&A* MERGES DATA FROM TWO FILES

This approach would let you generate receipts, thank-you notes, and management reports. Further, by using the two databases with *Q&A*'s @XLOOKUP function, you'd avoid needless retyping of donors' names, minimizing typos and wasted time.

Because you'd want to use the two databases together, both must contain a common field. *Q&A* calls these fields "primary key fields" (sometimes abbreviated *pkf*). You could use the donor's last name as the pkf in both databases, but this would lead to the "multiple donors with the same name" problem.

It would be better to assign unique donor ID numbers, one for each different giver.

With a little planning and assistance from the publisher's helpful support staff, you'll be able to use *Q&A* for an amazing variety of applications.

Both databases might have the same primary key field, named "Donor ID Number."

After designing the two databases, the first step would be to enter names and addresses of any new donors and assign them unique donor ID numbers. This is all done in the Donors database and does not require the Gifts database.

Then you would begin logging the day's donations in the Gifts database. You would start each entry by typing the appropriate donor ID number. (Note the one minor downside to this method: Either you'd have to have at your side a paper list of ID numbers matched with names, or you'd have to create a customized help file in *Q&A* that listed donor IDs.)

Whenever you enter a new gift record, *Q&A* will look up the appropriate donor's last and first names from the Donors database (also called the external database in this operation) by using the @XLOOKUP function and the common donor ID number. When it finds the name data, *Q&A* automatically inserts them in the Gifts database's appropriate blank name fields.

WHAT YOU CAN DO WITH @XLOOKUP

Once the donor and gift data have been entered, it's possible to create a variety of reports and personalized mail.

Since the @XLOOKUP feature has already placed first and last names in the Gifts database, receipts could be generated automatically by using the Merge feature in *Q&A*'s word processor. The data could be obtained from the Gifts database alone.

Reports listing donors by state, month, or name can be created by including @XLOOKUP functions in derived column formulas. (*Q&A*'s report feature lets you derive new columns from data in two or more fields. In a mail-order business, for instance, one field could contain quantity purchased, a second field could hold the unit price, and the derived column would calculate the total cost by multiplying one field by the other.)

In our example, a report is run from the Gifts database. An @XLOOKUP request in the derived column titled "State" pulls the State information from the external Donors database, based on the donors' ID numbers. It's even possible to sort and subtotal on data from an external database, as long as you properly position the derived column using the *Q&A* report rules. (Keep columns to the left side of the report if you want to sort and subtotal them.)

It's currently impossible, however, to sort and report based on subtotals. Thus, in the charity example, you cannot list the most generous states first. This is a limitation of *Q&A*'s reporting feature, rather than of the @XLOOKUP function.

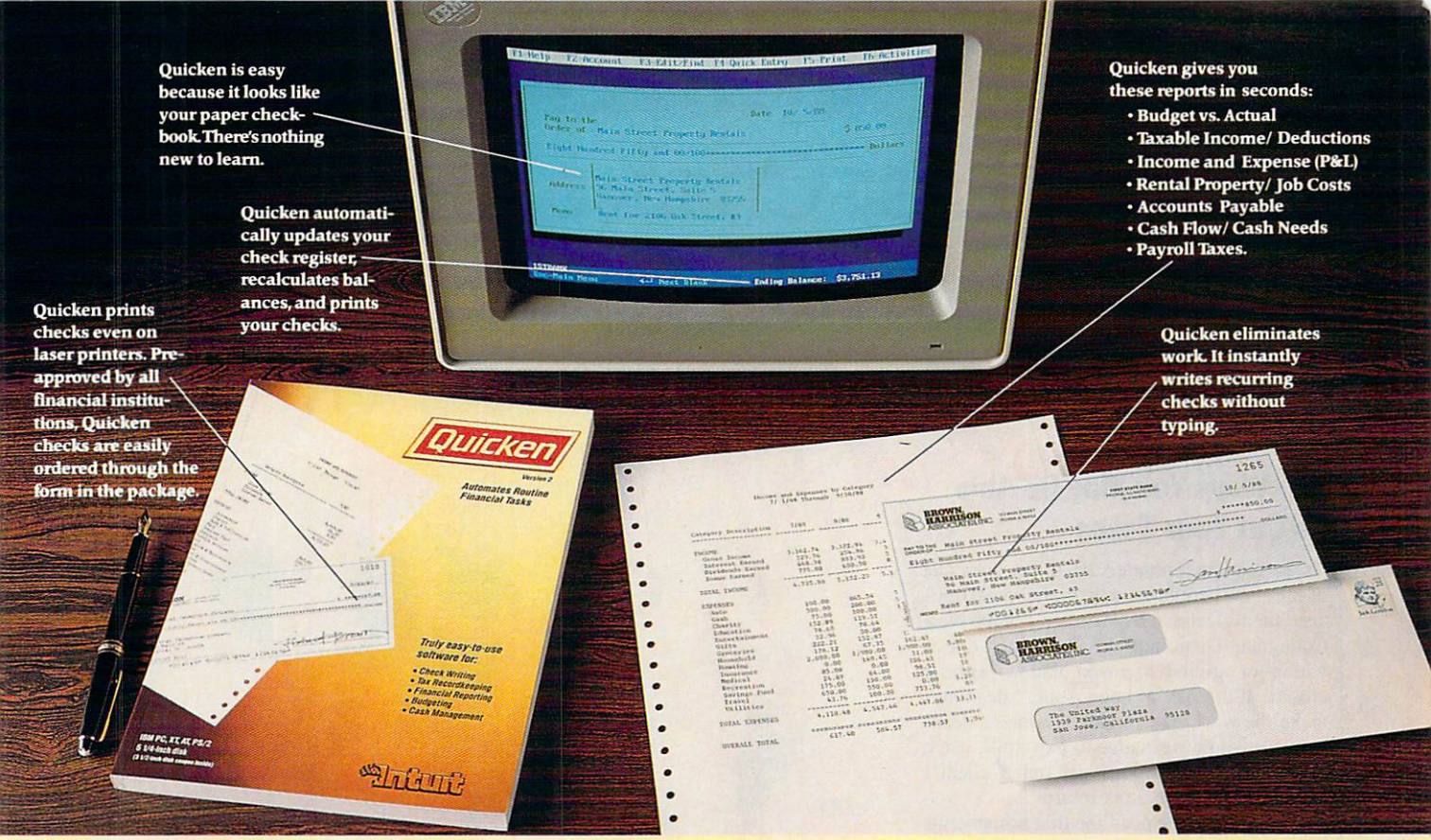
At the moment, there's also no easy way to create one merge letter with data from two *Q&A* data files. Unfortunately, *Q&A*'s mail-merge feature expects to get all of its variable data from the same file.

That's why the @XLOOKUP feature cannot be used with *Q&A*'s mail-merge facility. Since the merge feature can currently deal with only one database at a time, you cannot pull the inside address for your letters from the Donors database, along with the details of the gift (amount, date given, etc.) from the Gifts database to form a thank-you letter.

But you can accomplish this task by designing the Gifts database so that @XLOOKUP copies the necessary street, city, state, and zip code information to the Gifts database. You could set up the Gifts database (using *Q&A*'s "IF" function) to pull this address information from the Donor database to a Gifts record only when you request a letter.

Q&A has come a long way over the years. The new @XLOOKUP command is a powerful, useful feature. It's a good idea to practice on small, sample databases until you find the best strategy for getting the most from it. Once in a while, you'll bump into a task that *Q&A* can't perform.

With planning, however, and assistance from the publisher's helpful support staff, you'll be able to use *Q&A* for an amazing variety of applications. And just when you find something it can't do, chances are Symantec will release a version that can. ■



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Last-Chance Tax Breaks for '88

BY THOMAS B. MORTON

Ten Ways You May Be Able To Cut Your Taxes

As we're often reminded, deadlines are a fact of life. Few people want them, but most of us need them. Defined by Webster's Ninth New Collegiate Dictionary as "the line drawn within or around a prison that a prisoner crosses at the risk of being shot," deadlines make the world go 'round. We face a deadline every time we're due to pay a bill, catch a plane, write a report, get out a client's mailing, or send in a tax return.

April 15th is the deadline that accountants like me think about 12 months a year. We nudge and badger our clients because what one does with one's money by December 31 determines his or her tax damages in April of the following year. Now that the year's end is upon us, here are 10 ways you may be able to reduce your 1988 taxes. These tips are for those who (1) work out of a home office, (2) are self-employed, or (3) just want to keep more of their hard-earned money for themselves.

1. Buy New Office Equipment in 1988. If you're shopping around for new home-office equipment, you might want to make your purchases before the end of the year. If you do, you can take advantage of the expense deduction allowed for property that is used for your trade or business (called Section 179 property). This deduction, which is claimed on Form 4562, lets you claim up to $10,000 on one office purchase, such as new computer equipment or furniture. The cost of the property cannot exceed your income.

2. Take Out a Keogh or a SEP. If you receive any self-employment income—even if you hold a full-time job—you can put up to 20 percent of your 1988 self-employment income (up to a maximum of $30,000) into a Keogh retirement plan, or you can invest in a Simplified Employee Pension (SEP) retirement plan. Like IRAs, SEPs and Keoghs are fully tax deductible. But unlike IRAs, Keoghs and SEPs must be administered by December 31. For more information on Keoghs and SEPS, write or call the I.R.S. and ask for I.R.S. Publication 560, Self-Employed Retirement Plans.

ILLUSTRATION BY BOB CONRAD

ARE YOU WITHHOLDING ENOUGH MONEY?

If you're an employee, you might want to fill out a new W-4 form. If your employer isn't withholding enough money from your paycheck, you'll be hit with heavy penalties and interest charges. Last year, because of a complicated and knotty W-4 form, penalties were waived—but in the future, you have no excuse. (Be sure your net income calculation takes into consideration large amounts of interest, dividends, capital gains, etc., all of which are taxable income.)

If you're self-employed, making insufficient quarterly payments to the IRS could also land you a penalty. You must pay, through tax installment payments, at least 90 percent of your current year's tax liability. You can avoid a penalty if you pay at least 100 percent of last year's tax liability. The due dates for the payments are April 15, June 15, September 15, and January 15.

3. Don't Forget About an IRA. Although the deadline for IRA contributions is April 15, now is the time to figure out whether or not you're eligible to contribute. Contrary to popular belief, most people are still eligible for an IRA. If you have W-2 wages (income from an employer) and don't have a qualified pension plan, you can take out a $2,000 IRA. Even if you have a pension plan, such as a 401K, you can deduct IRA contributions as long as you meet certain earnings and filing status requirements. The only group that cannot take out an IRA is the 100-percent self-employed.

4. Take Advantage of 1988's Favorable Tax Rates. It's probably a safe bet to put as much income as possible—bonuses, capital gains, retirement income—into the 1988 tax year, as long as you don't push yourself into a higher tax bracket. Most economists predict that the next Administration (Republican or Democratic) will raise taxes in the next few years.

5. Cut Capital Gains with Capital Losses. Even though tax rates are expected to rise, you might still want to offset large gains with some losses. If you know that your business or investment will take a large capital gain

THOMAS B. MORTON *is a Certified Public Accountant living in New York City. He wrote "Be Your Own Tax Guru" in our March 1988 issue.*

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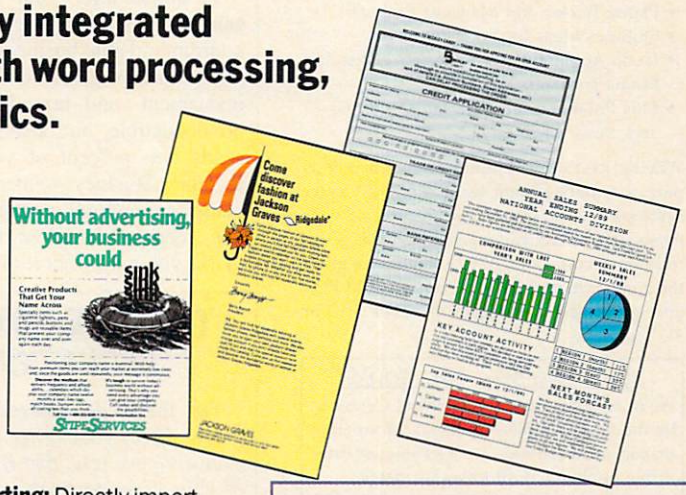

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this year, consider unloading a losing investment this year, too.

6. Pay Off Credit Card Balances. Credit card interest is 40 percent tax deductible for 1988. But in 1989 it will be only 20 percent tax deductible and in 1990, just 10 percent, so cut back on your debt this year. The credit card balances with the highest interest rates should be the first to go.

7. Consolidate Your Miscellaneous Expenses. Miscellaneous expenses—such as nonreimbursable business expenses, costs of professional organizations and journals, and investment- and tax-related expenses—are tax-deductible, but only the amount that exceeds two percent of your adjusted gross income. (Business-related entertainment expenses are only 80 percent tax-deductible.) If you seem to be close to the two-percent mark, you may want to prepay some of your planned 1989 expenses in 1988.

8. Deduct Business-Related Automobile Expenses. This is an excellent—and often-overlooked—deductible expense for the self-employed (who can deduct this right from their gross income on their Schedule Cs). If you use your vehicle for your business, you can depreciate part or all of its cost as well as deduct expenses for gas, oil, and repairs; insurance and license and registration fees; parking fees; tolls; and automobile club membership; or you can deduct 22.5 cents a mile for the first 15,000 miles and 11 cents a mile for anything over 15,000 miles.

If you're a company employee, you can also deduct car expenses, as long as they're not reimbursable from your company. For employees, this deduction falls under miscellaneous expenses (*see tip 7*).

9. Take Advantage of Charitable Contribution Deductions. Charitable contributions are one of the few deductions available for those people with uncomplicated tax situations. Donating a used computer, software, and printer to a camp or religious organization may pay more than reselling it. (The wealthy have known this for years.) There are certain limitations on the amount you can contribute to charities. However, any contributions that are not allowed this year may be carried forward for five years. Keep all receipts.

10. Home Businesses: Deduct Home Maintenance and Repairs. If you work from home, you can deduct a percentage of your bills for interior and exterior repair (for example, a new roof, painting, plumbing work). Deductions of this type are often overlooked by owners of home businesses. The percentage that is deductible depends on how much of your home is used for business (*see box, left*).

If the thought of complicating your tax picture makes your palms sweat (no one wants to hear from the I.R.S.), here's the most important tip that I can give you: Find a good accountant, preferably someone who specializes in your profession. The best way to find an accountant is through business associates—not through the yellow pages. And remember: Accounting fees are tax deductible. ■

TAKE THE HOME-OFFICE DEDUCTION TEST

For the Self-Employed. To deduct your home office, your office area must meet the exclusive use test, that is, a specific portion of your home must be used solely for your business. Is your home office used exclusively for business, and is the work you do considered a trade or business and not a hobby? Claiming a home office as a tax deduction greatly increases your chances of getting audited. To protect yourself, keep a diary that shows the nature and time of your work.

There are two ways of figuring the portion of a home used for business. One: Divide the area used for business by the total area of your home. Two: Divide the number of rooms used for business by the total number of rooms in your home. Try both methods and take the one that gives you the highest percentage.

For Employees. If you're an employee who wants to deduct his or her home office, you must meet the home-office requirement stated above, *and* you must have a home office for the convenience of your employer. But what does the convenience of an employer mean? Is a home office a required condition of employment? Is it justified by the type of work you perform? Is making comparable facilities available a greater inconvenience to your employer than to you? The more "yes" answers, the better. Even if you're a programmer for, let's say, IBM, you can't deduct the cost of a computer unless your employer says you need it. Now's the time to get a letter from your boss, stating that you are required to have a home office or a computer for the company's convenience. The letter should also make clear what equipment your company has paid for and what you paid for yourself.

If you work from home, you can deduct a portion of your bills for interior and exterior repair.

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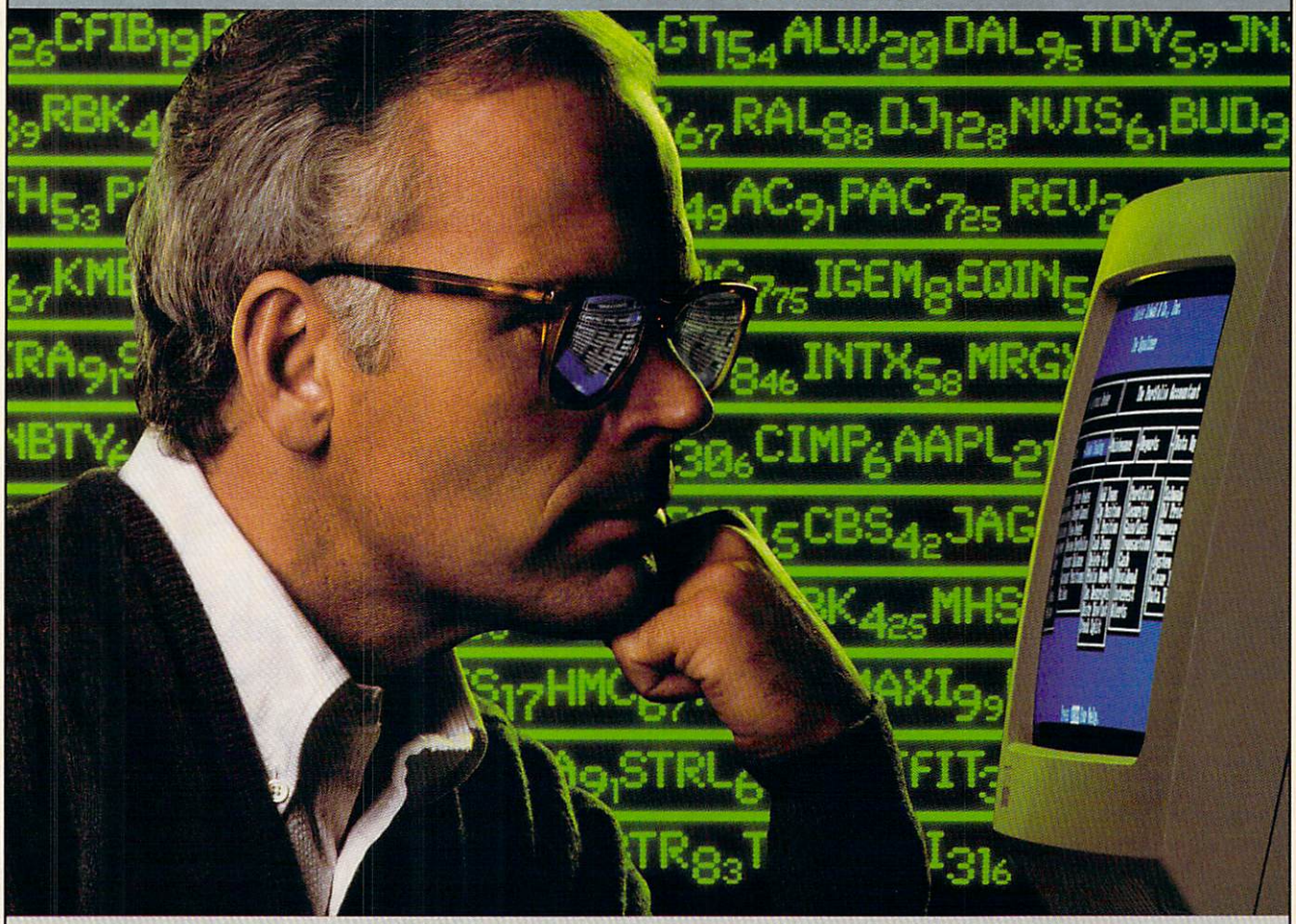

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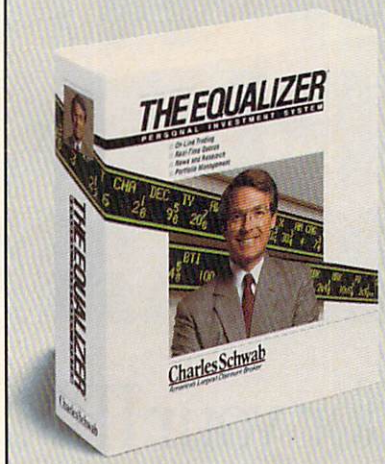

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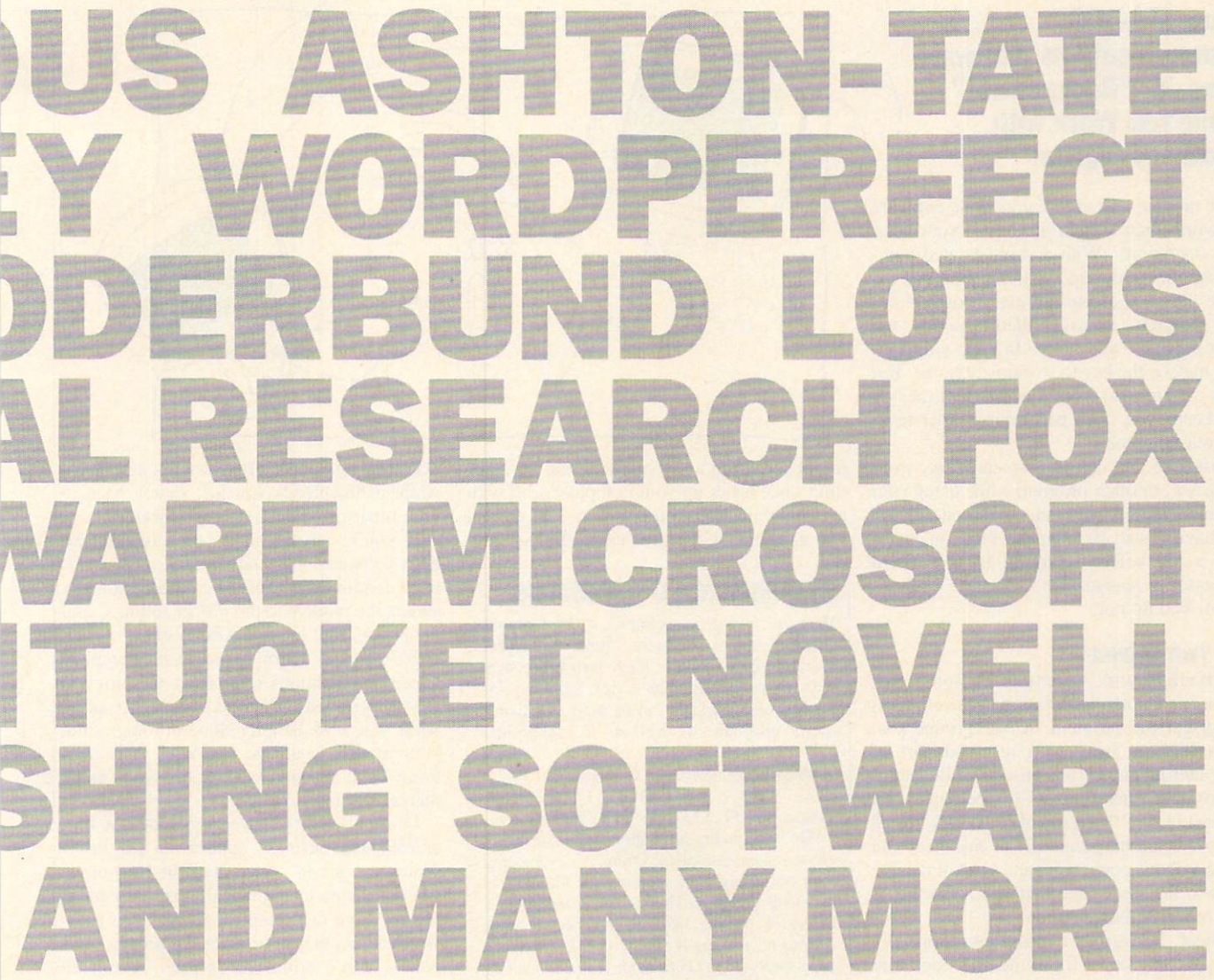

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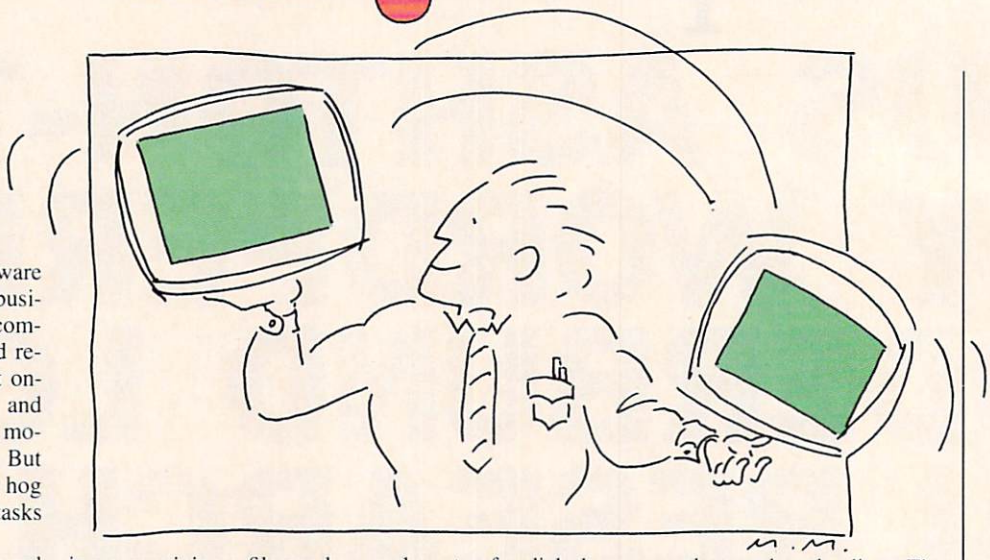
CIRCLE READER SERVICE 25

Use Your Modem While You Write or File

BY ERNEST PEREZ



Some MS-DOS Communications Software Runs in "Background" While You Work with Another Program

Your modem and communications software are worth their weight in gold to your business operations. With a sophisticated communications program, you can send and receive files and electronic mail, conduct on-line research, access bulletin boards and news services, and more. In fact, your modem may be the key to working at home. But there's a problem: your modem is a time hog and keeps you from performing other tasks on your computer.

How can you use your spreadsheet, word processor, or other program while using your communications program and modem? Do you have to wait 10 minutes while you download a file before returning to your word processor or spreadsheet?

No, you do not.

RUN TWO AT ONCE

"Background" communications programs are a potential solution to the computer horsepower problem. A background program (hidden away in a reserved part of computer memory) runs unseen while another program runs as usual (or perhaps a bit slower) in the "foreground." A background communications program, for instance, can make a phone connection and send or receive a file at the same time that you actively use the foreground application.

These background programs normally have a "hot key" for switching back and forth between programs. When you press the hot key, the foreground program is put "on hold" and all data is "frozen." The communications program pops up on the display screen, ready for commands, and remains active until you toggle the hot key again.

Background communications software lets you make efficient use of your computer and your time in many ways. For instance, sending or receiving a file can be a real waste of time since it ties up your computer. But with a communications program in background you can just switch to it using the hot key, dial, log on, and start downloading. Then while it downloads you just switch back to your other program and keep working.

If you're an old hand with communications software, you know that you can automate certain tasks. Scripts can automatically switch the modem to the proper settings, dial the phone, and log on. After a bit of experience, you can learn to automate complete telecommunications sessions so the program can accomplish complex tasks invisibly; while you work happily along in foreground, your modem could be checking your electronic mail or downloading the day's stock market results in Tokyo.

Using the Host (answering) mode is another effective business application for background programs. A program in Host mode will answer an incoming call, display a greeting message or prompt, and ask for a password. When the caller gives the proper password, the communications program generally displays a short menu.

These limited menus generally let the caller send a message or a file. Background Host mode lets you set up your own bargain-basement electronic mail system. Clients or colleagues can download or upload messages or files all day long. Meanwhile, you're free to use the computer for other tasks.

If you have a PC or XT computer, or an AT or 386 without the OS/2 operating system, why not push your computer to the limit? The two programs highlighted here will help you do that by letting you run two programs at once. ■

RECOMMENDED PROGRAMS

Here are two good examples of background communications software. Both publishers provide good support. Each package comes with extensive sample script routines. Of course, each package can be used as a stand-alone program, as well as a background program.

Mirror II, *Version 3.6.12. SoftKlone Distributing Corp., 327 Office Plaza Drive, Tallahasee, FL 32301; (904) 878-8564. $70.*

This top-quality program is a *Crosstalk XVI* clone at a bargain price. I think it's even better than the original. It supports six file-transfer protocols and has a Host mode. *Mirror II* has extensive on-line help on practically every command, making it easy to use. It also has a particularly good Learn mode that automatically records logons and/or specific on-line procedures and plays them back.

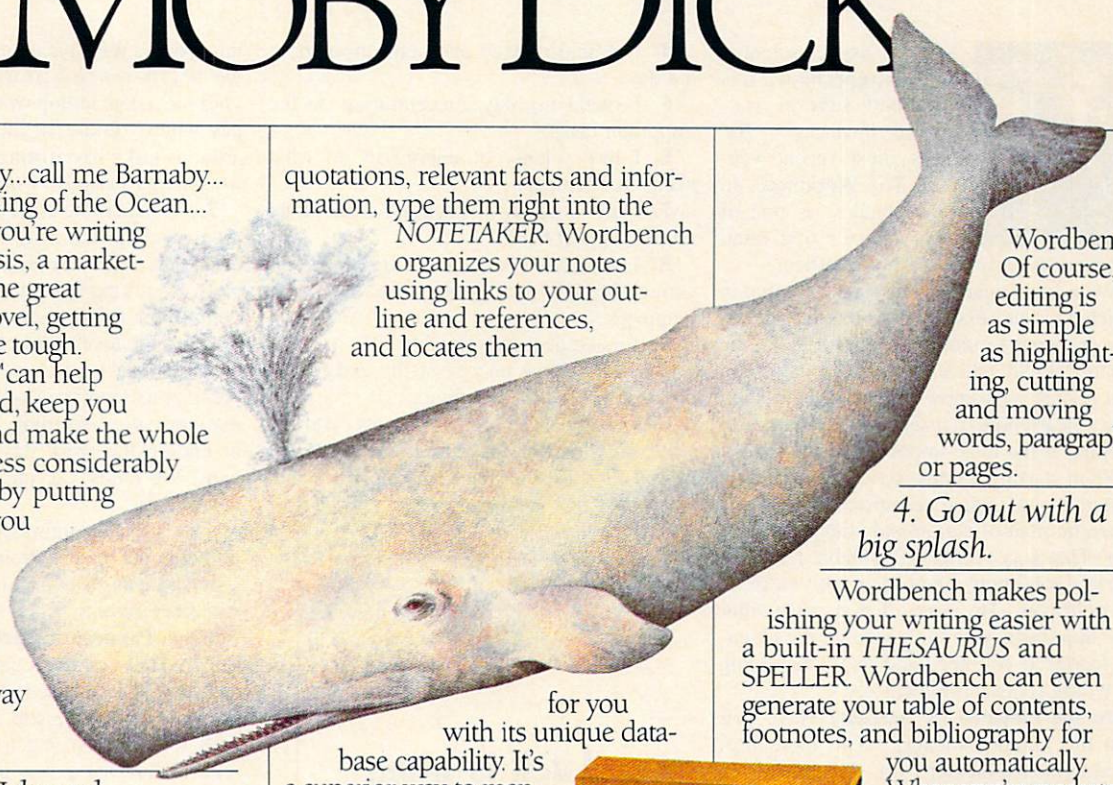
Relay Silver, *Version 1.0. Relay Communications, Inc., 41 Kenosia Ave., Danbury, CT 06810, (203) 798-3800. $150.*

A more economical version of *Relay Gold*, the same company's micro-to-mainframe communications program, *Relay Silver* has good on-line help screens and a built-in editor. The Learn mode automatically produces accurate, fast scripts. *Relay Silver* is easy to use and comes with a tutorial program. You may want to get this package soon, as the publisher is going to discontinue it (probably in July 1989) and carry only the more expensive *Relay Gold*.

ERNEST PEREZ *works in the* Chicago Sun-Times *circulation department and is a consultant on the installation of a computerized information system.*

ILLUSTRATION BY MONA MARK

HOW TO WRITE MOBY DICK



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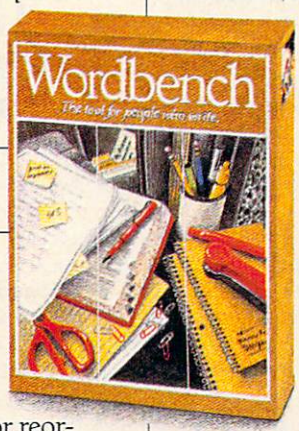

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Narrow Your Focus and Stick to Your Plan

BY SARAH & PAUL EDWARDS

Stewart Sagar, scientist and entrepreneur, has launched several successful businesses. Sagar's most recent venture, The Workplace, in Los Angeles, is one of the country's first retail stores exclusively for the home office.

We asked Sagar what he finds essential in launching a successful home-based venture. "Be prepared to work 18 hours a day," he told us. "Read, and learn from conversations with people who know more than you. You have to learn how to listen. Next to patience, listening is the most important attribute."

When starting a home-based venture with limited capital, Sagar recommends selecting a specific plan of action and sticking to that plan. That way you'll get valuable feedback that lets you know whether or not you're on the right path. He warns that if you scatter your approach, you can't receive the essential feedback you need and may keep doing the wrong thing more intensely.

Are You Prepared for Success? Have you seen the bumper sticker, "The more prepared I am, the luckier I get"? It reminds us of our favorite definition of luck: Luck is when preparation meets opportunity.

Success looks so simple when you observe someone else enjoying it. But the preparation for victorious moments is easy to overlook. Each victory begins with weeks, months, and years of work.

So how is your luck these days? Are you prepared for whatever opportunity may arise? Here's a mini-quiz to test your readiness for success. Give yourself two points for each statement with which you strongly agree, one point if you agree, and no points if you disagree.

1. I know what I want to accomplish in life.

2. I have specific written goals, and I review them daily.

3. I get out of bed rested and ready to go.

4. I remain relaxed and calm throughout the day.

5. I spend my day concentrating on the important tasks.

6. I have plenty of energy to do what needs to be done.

7. I am not easily distracted. I concentrate on the tasks at hand.

8. I understand what others are communicating through their voice tone and body language.

9. I make decisions quickly.

10. I still have energy at the end of the day for my favorite activities.

If you scored 18 or more points, you are "fit" for whatever opportunities arise. If you scored 10 to 17, you're on the right track, but can step up your training to further your success. If you scored under 10, you're out of shape and need to start a success training regimen at once.

Luck is when preparation meets opportunity.

Four Steps to Peak Performance. Preparing yourself for peak performance is much easier when you're working from home. At home, you have flexibility in scheduling your work and greater control over the course of your day. Here's a basic four-step regimen to keep you sharp:

1. Eat three meals a day and eliminate or minimize energy-drainers—such as alcohol, sugar, salt, coffee, and junk food—that seem to charge you up but actually stress you out. Keep healthy, high-energy snacks on hand to give you a natural lift during the work day.

2. Get ample sleep each night—enough so that you wake up feeling refreshed, but not so much that you feel sluggish. (Try programming your "internal alarm clock" to wake you up without commotion. We know this works. We gave up using an alarm when we began working from home.) Schedule your most demanding work for those times of day when you are at your peak. Leave less arduous tasks like sorting mail and filing for low-energy periods of the day.

3. Do an aerobic exercise (swimming, running, cycling, dancing) at least 20–30 minutes every other day. Choose an activity you enjoy. Working from home allows you more options for fitting exercise into a busy day. Choose whatever times work best for you. You can use your exercise time as a work break or to demarcate your work hours: starting work after returning from a morning run or ending the work day with a trip to the gym. We enjoy varying exercise time from day to day.

4. Develop an optimistic attitude. Worry is probably the biggest drain on your energy. It saps enthusiasm and confidence faster than any other activity.

Make Paperwork Easier. According to Robert Half International Inc., a personnel recruitment firm based in San Francisco, the average businessperson spends three hours each week just trying to find things in the office! Here are a few ideas we've discovered for finding things when you need them.

1. Use color to organize your paper files and computer disks. We have set up a color-coded system with colored file folders, accordion folders, labels, and disks for quickly putting our hands on information when we need it: yellow for top priority items, green for information related to finances, and blue for information consulted daily.

2. Keep your in-box empty. Filing material by relevant topic, even when we haven't had time to read it, helps us locate key information when we need it. (Sarah is much better at this than Paul.)

3. Use desk space for work only. To prevent our desks from becoming informal file drawers, we have a working rule that the desk is for work-in-progress only. A piece of paper is in use or in its file.

In the long run, it takes far less time to file as you go than to find something you need from unfiled piles.

Quote of the month: "We are not just our behavior. We are the person managing our behavior." —*The One Minute Manager*, by Kenneth Blanchard and Spencer Johnson (Berkeley Books, 1983).■

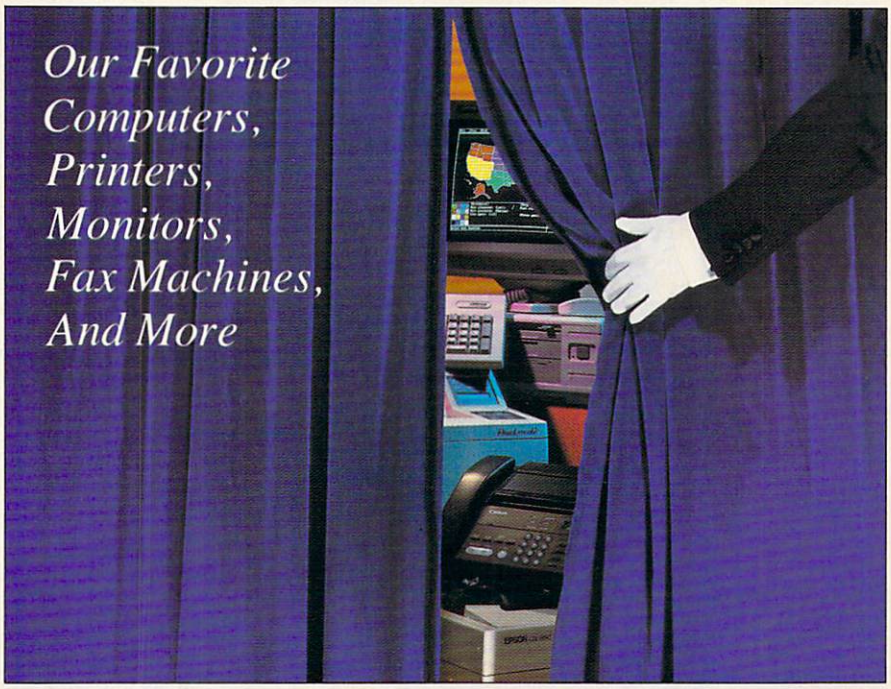
PAUL & SARAH EDWARDS *are the authors of* Working from Home, Everything You Need to Know to Live and Work Under One Roof *(Jeremy P. Tarcher, 1987). They co-host the radio program "Wake Up to Success!" in Los Angeles. Contact them on the Working from Home Forum on CompuServe.*

ILLUSTRATION BY MONA MARK

Home Office COMPUTING

EDITORS' PICKS 1988

The Best and Brightest Products Of the Year



PHOTOGRAPH BY JOEL WHITE

Every year, hundreds of products flow into our offices, out to reviewers, and back again. We get a quick first impression of a brand new product, then a more considered evaluation from a reviewer, and then a chance to test both the reviewer's and manufacturer's claims against our own experience with the product. After all the oohs and aahs, the ohnos and didja-see-thats, what makes a product an Editors' Pick?

Editors' Picks are products we have bought or would consider buying with our own money. They are products that have grabbed our attention, hearts, and souls over time. To do so, a product must be well made and reliable. It must have advanced features that add professional quality to our work. And, it must be supported by a reputable manufacturer and its dealer or service network.

A lot of these products meet bottom-line criteria. Shortening the list requires a series of subjective judgements, which we arrive at by answering the following questions:

- Does a product give good value for the money? That depends, of course, on whether or not you need any of the special features.
- Does a product work well? That depends in part on your working style.
- Do you like the manufacturer? That depends on the small biases that any consumer builds up over time. Do you prefer Coke to Pepsi? Oreos to Hydrox? Chevy to Ford? Often, buying decisions come down to the name on the machine.

In short, to make these picks we've assessed machines objectively (looking at the hard data) and subjectively (making personal judgments). Combining the two viewpoints, we think, is the way to insure that you'll be happy, not only when you leave the store, but for years afterward. After all, if you're spending thousands of dollars, you are making a big investment, and you want a good rate of return.

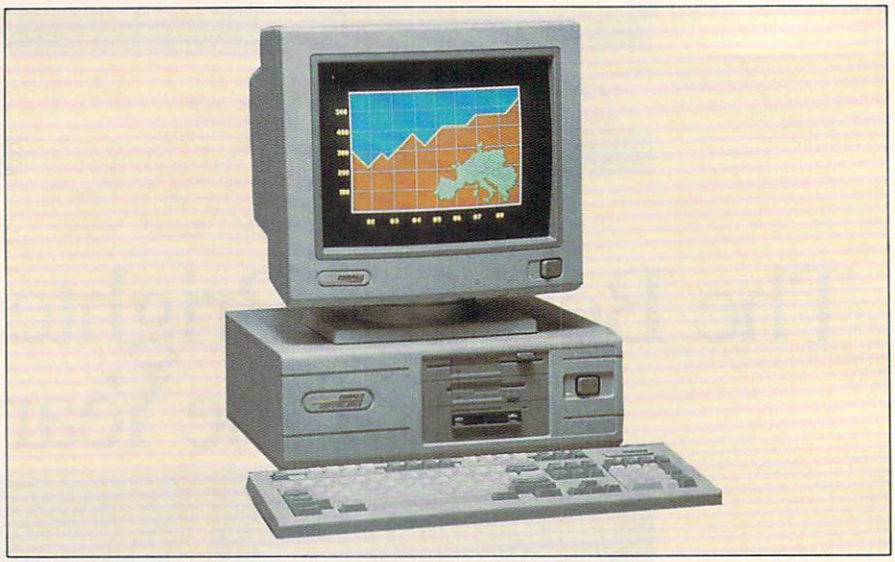
New Kind of 386

Compaq 386s Model 40, ($5,574)
Compaq Computer Corp.; (713) 370-0670

KEY FEATURES: Intel 80386SX microprocessor, running at 16MHz; 1MB RAM; 40MB hard-disk drive (29 ms); 5.25-inch 1.2MB floppy-disk drive; mouse, parallel, serial, VGA ports; VGA monochrome monitor; four open expansion slots and one high-speed memory slot; DOS 3.3

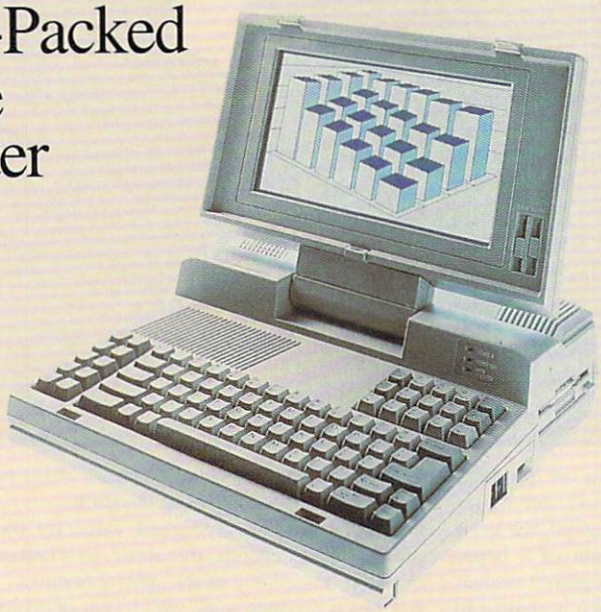
WARRANTY: One year

REVIEW: Upcoming in 1989



Compaq, which introduced the first 386 machine in 1986, recently brought out the first with the new 80386SX chip. This less expensive chip runs at 16MHz; the computer itself is faster than a 16MHz AT, but a bit slower than a 16MHz 80386 machine. Aside from its slightly slower speed, the SX chip is capable of running all software designed for 386 machines—though it costs considerably less. For instance, the 386s is about $1,400 less than the new Compaq Deskpro 386/20e. In addition, the new Compaq has a small footprint without sacrificing any of the solidity for which Compaq is known.

Feature-Packed Portable Computer



NEC MultiSpeed HD, ($3,695)
NEC Home Electronics (USA), Inc.; (312) 860-9500

KEY FEATURES: NEC V-30 microprocessor; 4.77/9.54 MHz operating speed; 640K RAM; 3.5-inch floppy-disk drive; 20MB hard-disk drive (access speed 78 ms); supertwist LCD (electroluminescent backlit) display; parallel, serial, RGB monitor interface; two open expansion ports; carrying case (sold separately); 14.2 pounds; six programs in ROM; MS-DOS 3.2

WARRANTY: One year

REVIEW: August 1988

The MultiSpeed HD portable is powerful enough to be used as a primary computer, not merely an adjunct to a desktop. The electroluminescent backlit LCD screen is easy to read in virtually all lighting conditions. The hard-disk drive has an autopark feature that protects your data against bumps and lurches of the road. A special HELP key brings help, and a POP-UP key brings up a menu of six easy-to-use ROM-based programs: *Telecom, Outliner, Filer, Dialer, Notepad,* and *Setup*. The battery can run out in less than two hours (though it will last longer if you don't use the backlighting or the hard-disk drive), so it's not suited to working on long airplane trips. But once you arrive, you've got a lot of power in a small package.

Industrial Strength AT

AST Premium/286 Model 140, ($4,190)
AST Research, Inc.; (714) 863-1333

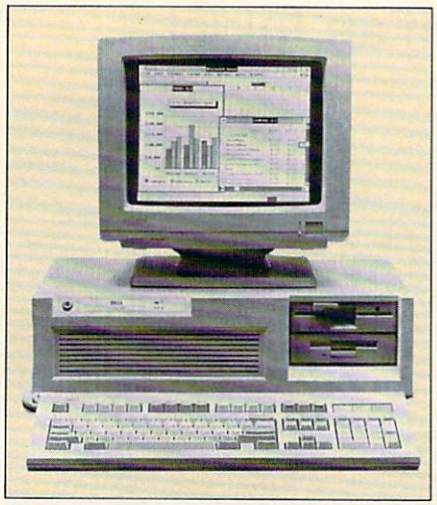
KEY FEATURES: Intel 80286 microprocessor; 6/8/10MHz operating speeds; 1MB RAM; 40MB hard-disk drive (28 ms); 5.25-inch 1.2MB floppy-disk drive; parallel and serial ports; EGA video board; monochrome monitor; five open expansion slots; DOS 3.3

WARRANTY: One year

REVIEW: November 1988

There is a fineness of design and finish to the AST Premium/286—to say nothing of functional reliability—that bespeaks a serious effort to attract customers and keep them. The keyboard is a genuine pleasure to use, and the screen display (with either monochrome or EGA color monitor) is sharp to the eye. The whole system is sturdy—ready to take some pounding. And it is fast; the C› prompt is up and awaiting input in a few seconds. The User's Reference Manual is one of the best around. The AST Premium/286 is made to work, and work well.

EDITORS' PICKS



Superb Value in A 386 Computer

Dell System 310, ($4,218)
Dell Computer Corp.; (512) 338-4400

KEY FEATURES: Intel 80386 microprocessor; 4.77/8/20 MHz operating speeds; 1MB RAM; 40MB hard-disk drive (28 ms); 5.25-inch 1.2MB floppy-disk drive (3.5-inch drive optional); VGA monochrome monitor; parallel, two serial, VGA ports; eight open expansion slots; DOS 3.3

WARRANTY: One year

REVIEW: November 1988

The fast (20MHz and zero wait states) Dell 310 is the best price/performance deal in the 386 marketplace. The keyboard is better than average with respect to feel. Bootup and hard-drive accesses are gale force. The VGA display, in either 16 shades of gray or full color (depending on the monitor) is sharp, and the colors are pure. Dell's customer service is probably as good as any in the industry. In addition to the one-year warranty, Dell offers a 30-day full-refund guarantee if you don't like the computer. In sum, this computer is an outstanding buy.

—HENRY BEECHHOLD

Lightweight Portable

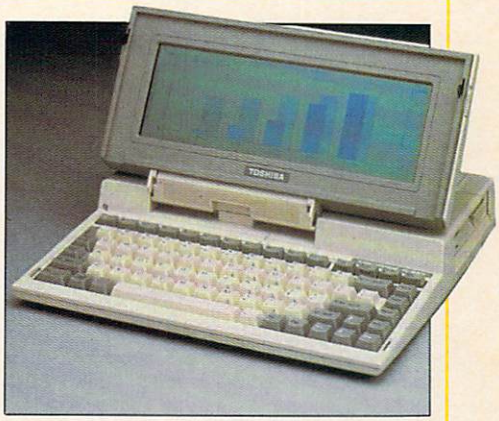
Toshiba T1000, ($1,249)
Toshiba America, Inc., Information Systems Division; (800) 433-5999

KEY FEATURES: Intel 80C88 microprocessor; 4.77MHz operating speed; 512KB RAM (expandable to 768K); MS-DOS 2.1 in ROM; 3.5-inch 720KB floppy-disk drive; 6.4 pounds; supertwist LCD display; five-hour battery life; one expansion slot (for optional modem); SideKick; parallel, serial, external 5.25-inch floppy-disk drive, RGB, composite, and monochrome ports.

WARRANTY: One year

REVIEW: February 1988

This lightweight portable embodies the philosophy that "less is more." Weighing a little more than six pounds, the T1000 is the basic computer-in-a-briefcase. Its dark blue letters on a light green background are easily readable in many kinds of lighting, including



outdoor and overhead fluorescent. On the other hand, without its own backlighting, it's not so easily readable in most airplane seats. The computer is not fast (4.77MHz), but that speed is fine for word processing or any small-scale tasks. It has only one disk drive, but with DOS in ROM, it's a workable arrangement. The one-year warranty provides a loaner or replacement within 48 hours.

Superfast And Small AT Computer

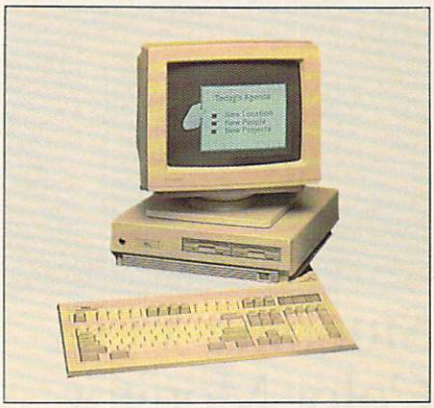
Dell System 220, ($3,119)
Dell Computer Corp.; (512) 338-4400

KEY FEATURES: Intel 80286 microprocessor; 8/20MHz operating speeds; 1MB RAM; 40MB disk drive; VGA monochrome monitor; parallel, serial (2), VGA interfaces; three expansion slots; DOS 3.3

WARRANTY: One year

REVIEW: November 1988

At 20MHz, the Dell 220 is as fast as any AT on the market and a good match for some 386 machines. Using only 3.5-inch floppy disk drives (external 5.25-inch is available), it has a small footprint. It's shipped with a



VGA monochrome monitor (color available). You can add up to 8MB of memory to the system without using up one of the three expansion slots. The one-year on-site service contract from Honeywell-Bull insures prompt (and free) service. This sleek system is a gem.

PC with an AT Engine

Tandy 1000 TL, ($1,619)
Tandy Corp.; (817) 390-3700

KEY FEATURES: Intel 80286 microprocessor; 4/8 MHz operating speeds; 640K RAM; two 3.5-inch 720K floppy-disk drives; parallel, serial, and audio ports; MG/CGA adapter; monochrome monitor; four open expansion slots; DOS 3.3 in ROM, DeskMate

WARRANTY: 3 months

REVIEW: Upcoming in 1989

The Tandy 1000 TL is basically a supercharged PC. It uses an Intel 80286 chip, the one in AT computers, which makes it faster than most PCs. However, the system is not equipped to handle AT expansion cards or high-storage disk drives, so it cannot be called an AT. In addition to its speed, the computer is notable for its impressive IBM-style keyboard, which is sculpted for easier typing. Because both DOS and *DeskMate*—the Tandy collection of handy desk accessories—are in ROM, the computer boots extremely quickly and presents you with a screen of icons. Tandy, in short, has used the basic PC as a model and souped it up, bringing the 1000 line new excellence.

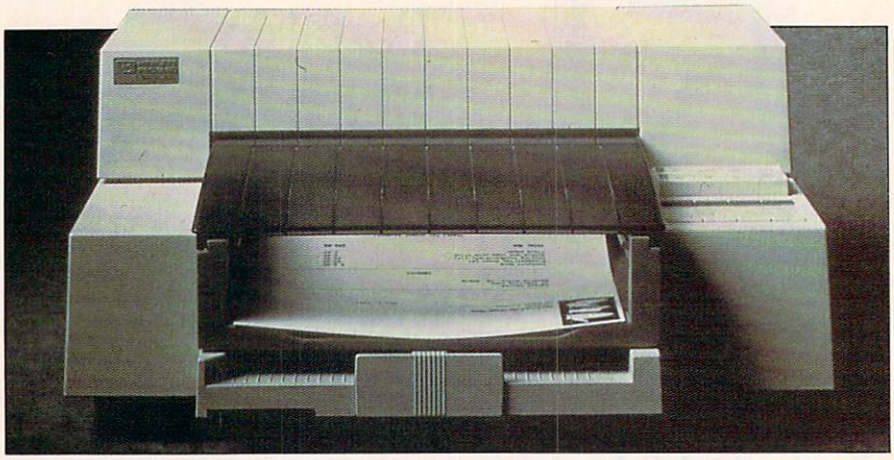
Laser-Like Print Quality From an Inkjet

HP DeskJet, ($995)
Hewlett-Packard, Personal Computer Group; (800) 752-0900; (415) 857-1501

KEY FEATURES: 120 cps in letter-quality mode; 240 cps in draft mode; three fonts built in; two cartridge ports available; attaches to parallel or serial port; cut-sheet feeder (100 sheets at time)

WARRANTY: One year

REVIEW: August 1988



Even though its graphics imaging isn't quite up to laser quality, you'd be hard pressed to distinguish a page of DeskJet text from that of a $2,695 Hewlett-Packard LaserJet Series II. The resolution is exactly the same as that of popular laser printers—300-by-300 dots per inch. Even with an 8x jeweler's loupe, our reviewer couldn't see any dots! The printer has no provision for fanfold paper (single sheets only), but it prints envelopes easily. The design eliminates clogging and dripping, problems that plagued earlier inkjet printers. Installing or replacing cartridges is a fuss-free, white-glove operation. If your software works with the HP LaserJet printer, it should work with the DeskJet. Customer relations are first rate, with a friendly voice always available at the other end of the toll-free line.

Stunning VGA Color Monitor

Zenith ZCM-1490, ($999)
Zenith Data System; (312) 699-4800

KEY FEATURES: 640-by-480 resolution; 14-inch diagonal screen; displays 256 colors; built-in fan

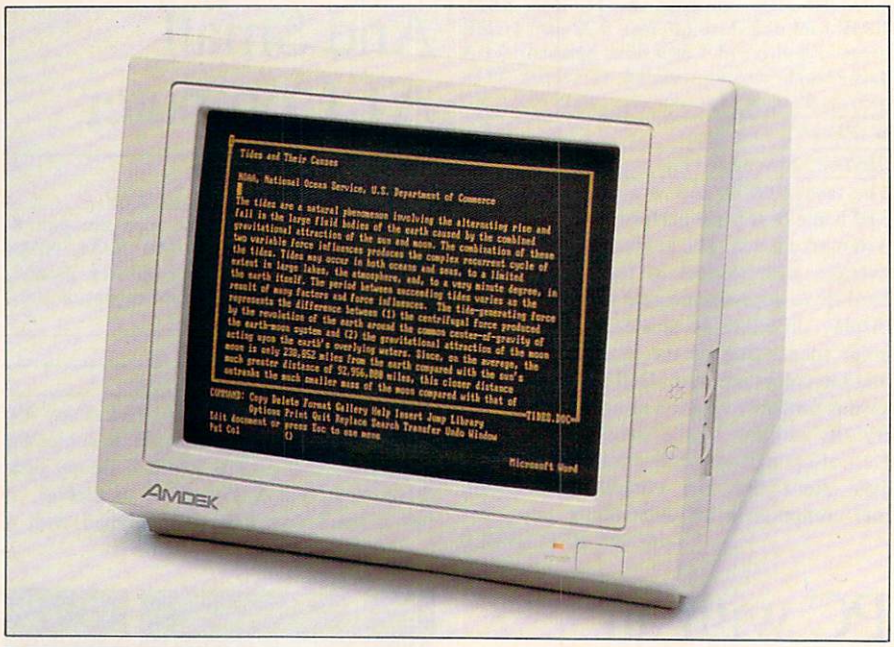
HARDWARE REQUIREMENTS: IBM PC or compatible with VGA adapter board; or IBM PS/2

WARRANTY: One year

REVIEW: June 1988

Once you spend a few minutes with a Zenith Flat Tension Mask (FTM) monitor, you'll have a heck of a time going back to your old screen. FTM technology, which uses much more electrical power than do ordinary monitors, generates images of unsurpassed clarity, brilliance, and color saturation. The colors (up to 256 at once with a VGA card) are truly delicious. For any application that requires brilliant color and line precision, the Zenith FTM is an ideal monitor. The images are as crisp as fresh lettuce, geometrically accurate, and hold fixed as a photograph. FTM has to be the future of display technology—but it's here now.

Sharp Monochrome Monitor



Amdek Monitor/410, ($240)
Amdek Corp.; (408) 436-8574

KEY FEATURES: 12-inch (diagonal) screen; available in amber, green, or white; tilt/swivel base

HARDWARE REQUIREMENTS: IBM PC/XT/AT or compatible and video display card with monochrome output

WARRANTY: One year

REVIEW: April 1988

We tried the white-on-black model in the Amdek line, and when booting up Microsoft *Excel* or *Ventura Publisher* we got the eerie sensation that our IBM computer had been transformed into a Macintosh! The screen display is sharp and clear, and the screen itself is covered with nylon mesh that significantly cuts glare. Side-mounted controls adjust contrast and brightness. Setting the controls for the proper viewing requires a certain trial-and-error delicacy—but the results are worth the effort. If you want to run programs that require high-resolution graphics, but can't afford or don't need an EGA or VGA monitor, the Amdek monochrome monitor is a good bet.

EDITORS' PICKS

Full-Page Monitor for Desktop Publishing

Cornerstone Technology SinglePage, ($999)
Cornerstone Technology; (408) 279-1600

KEY FEATURES: Dimensions 12.7-by-16.5-by-13.7 inches; software diagnostics; video drivers for *AutoCAD, GEM, 1-2-3, PageMaker, Ventura Publisher, Windows, WordPerfect, WordStar*; supports Hercules graphics; True Fonts included; 768-by-1008 resolution

HARDWARE REQUIREMENTS: IBM PC/XT/AT or PS/2 Model 25 and 30; Compaq 386; Macintosh SE/II

WARRANTY: One year

REVIEW: November 1988

The SinglePage is ideally suited for desktop publishing and CAD applications. Cornerstone provides five disks of software diagnostics, video drivers, and "True Fonts." The fonts, customized for GEM and *Ventura Publisher*, give you an accurate screen representation of the fonts as they would be printed. Its "portrait" (or vertical) orientation means that you can see the page in exactly the same size and shape as it will be printed. Text and graphics look bright and sharp, and the images are free of the jitter seen in some similar monitors. If you're in the desktop-publishing business, take a look at the SinglePage.

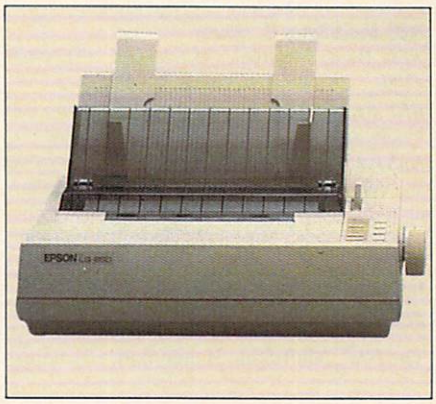
The "Perfect" 24-Pin Printer

Epson LQ-850, ($849)
Epson American, Inc.; (213) 539-9140

KEY FEATURES: 264 characters-per-second speed in draft mode; 88 cps in letter-quality mode; parallel and serial ports; 6K buffer; Draft, Roman, and Sans Serif fonts built in; Courier, Prestige, Script, OCR optional via plug-in font modules

WARRANTY: One year

REVIEW: April 1988



If you decided to design the perfect dot-matrix printer, you might come up with the LQ-850. It's fast, handles both single sheets and continuous-form paper, and prints envelopes. The best thing about the printer is its superior paper handling; you can print a single sheet without removing the continuous form paper. This feature is ideal for running the first page of a document on your letterhead using the sheet feeder, then the subsequent pages on blank sheets. The print quality is outstanding. When people compare print samples they have trouble telling whether they come from a letter-quality or dot-matrix printer. The "LQ" in the product name is no idle boast.

Laser Printer For Heavy Use

Toshiba PageLaser 12, ($3,799)
Toshiba America, Inc., Information Systems Division; (714) 583-3000

KEY FEATURES: Prints at 12 pages per minute; 512KB RAM; three built-in fonts; 250-sheet paper tray; parallel and serial ports; emulates Hewlett-Packard LaserJet Plus

WARRANTY: One year

REVIEW: October 1988

Working with the Toshiba PageLaser12 is a joy. It's fast and dependable. After 10 months and nearly 20,000 pages (that's how long the toner lasted!), the print quality of both text and graphics is still very sharp. The control panel has six pressure-sensitive pads that let you cycle through the menu and set parameters. A 16-character LCD display gives a full explanation of all operating procedures. A 250-sheet paper tray holds standard sheets, and a legal-size tray is optional. Although little software directly supports the Toshiba printer, it emulates five different printers. It's not suited for desktop publishing because it does not support PostScript; but it is a fast and efficient paper handler.

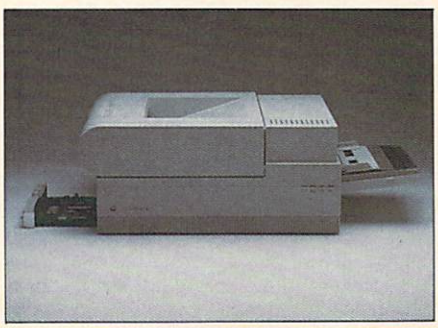
Laser Printer For Desktop Publishing

Apple LaserWriter IINT, ($4,999)
Apple Computer, Inc.; (408) 252-2775

KEY FEATURES: Prints at speed of 8 pages per minute; 2MB RAM; 35 built-in fonts; 200-sheet paper tray; AppleTalk, parallel, and serial ports; supported by all PostScript software

WARRANTY: Three months

REVIEW: October 1988



The sleek Apple LaserWriter II is a direct descendant of the Apple LaserWriter, the original and now classic laser printer. With built-in PostScript, the IINT readily supports all the top desktop-publishing software. Its 2MB of memory is adequate for printing a full page of graphics. The new Canon printer "engine" produces darker blacks than the original LaserWriter. The 200-sheet paper tray has a well designed manual feed slot that simplifies the printing of envelopes—a pesky problem for most printers. All in all, the IINT is a dream—producing beautiful text in an array of fonts and stunning graphics.

Top-Quality Multi-Frequency Monitor

NEC MultiSync II, ($899)
NEC Home Electronics (USA) Inc.; (312) 860-9500

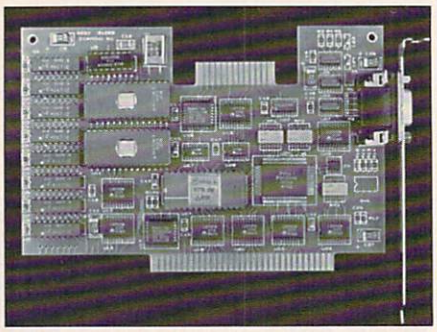
KEY FEATURES: 14-inch diagonal screen; 800-by-560 maximum resolution; tilt/swivel base

HARDWARE REQUIREMENTS: IBM PC/XT/AT and compatibles, with MDA, HGC, CGA, EGA, or VGA video display card; IBM PS/2 and compatibles, Apple Macintosh SE/II (custom cable required)

WARRANTY: Two years

REVIEW: October 1988

The NEC MultiSync II automatically adjusts to work with any display card, from monochrome to VGA. And it works well. With a relatively small space between the dots on the screen, the monitor displays text that's clear and soft on the eyes no matter what color it is—amber, green, or paper-white. (The text switch works in EGA, but not VGA, mode.) The color is beautiful—clear and crisp. If you have a standard color or monochrome adapter now but think you might sometime upgrade to VGA, then the MultiSync monitor will handle both your present and future needs—with clarity and style.



Versatile VGA Card

Paradise VGA Plus Card, ($450)
Paradise Systems, Inc.; (415) 960-3381

SYSTEM REQUIREMENTS: IBM PC/XT/AT or compatibles; PS/2 Models 25 and 30; analog monitor

KEY FEATURES: Supports MDA, HGC, CGA, EGA, VGA, 132-column, and 800-by-600 resolution; (5-by-5.9 inches)

WARRANTY: Three years

REVIEW: October 1988

With the Paradise VGA Plus card and an analog monitor (it doesn't work with digital monitors), you can run software that requires CGA, MDA, Hercules, EGA, or VGA modes. In addition, you can squeeze 132 columns of text onto the screen at once or work with 16 colors at an astounding 800-by-600 resolution. These extra-high resolution modes, supported by monitors like the NEC MultiSync II and the Magnavox Multimode, require installation of the supplied Paradise software driver. Like all other VGA cards, the VGA Plus can display 256 colors at once. Though the resolution must be lowered to fit all colors on-screen, the Paradise card double scans to trick your eye into seeing a sharper picture. The display is rock solid—no lines or ripples. If you have or plan on buying an analog monitor, you'd do well to connect it to this card.

Superior Mouse

A+ Mouse/PC Mouse, ($99; $129; $149)
MSC Technologies, Inc.; (415) 656-1117

KEY FEATURES: Mouse operates on optical pad

HARDWARE REQUIREMENTS: Apple IIe/c and Macintosh Plus; Macintosh SE/II ($129); IBM PC/XT/AT ($149)—includes *PC Paint*, *Designer* pop-up menus

WARRANTY: Lifetime

REVIEW: July 1988

Unlike its competition, the A+/PC Mouse uses a light that reflects off a mirror-like, grid-lined pad to position the cursor on-screen, eschewing all mechanical parts. Without internal moving parts, the A+/PC Mouse will probably last forever. In fact, the manufacturer offers a lifetime warranty on the mouse. But is the A+/PC Mouse really that much better? We tried it on a Macintosh SE for more than two months, and conclude that it's definitely superior to Apple's fine mouse. It doesn't pick up dirt and moves smoothly all the time. The only potential drawback for some users is that the mouse requires the optical pad, which can restrict your movements.

High-Performance VGA Card

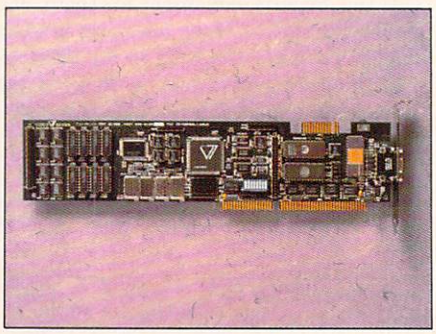
Video Seven FastWrite VGA, ($599)
Video Seven, Inc.; (415) 656-7800

KEY FEATURES: 256K RAM; Supports MDA, Hercules graphics, CGA, EGA, VGA; 800-by-600 resolution with 16 colors; 720-by-540 with 16 colors; with the optional 256KB RAM upgrade ($155) display is 1024-by-768 with four colors and 640-by-400 with 256 colors.

HARDWARE REQUIREMENTS: IBM PC/XT/AT or compatibles

WARRANTY: Five years

REVIEW: Upcoming in February 1989



The FastWrite VGA is a VGA card that plainly is not part of the pack. It writes data to the screen very fast, and the quality of the image has no peer. Besides being guaranteed to work with VGA software and monitors, it supports a wide range of other graphics displays—CGA, EGA, MDA, Hercules, VGA, and Super VGA. The 256K RAM can be expanded to 512K, allowing 1024-by-768 resolution. The included software helps you fine tune the setup to suit your needs—but getting started is a simple matter of pulling your old card out of the computer and inserting the FastWrite VGA. Technical assistance is available via a toll-free line. From the standpoints of speed, color saturation, and display clarity, FastWrite is a most impressive VGA board.

Versatile Two-Line Phone

NorthWestern Bell Techline 2702S, ($100)
NorthWestern Bell (800) 822-1000

KEY FEATURES: Two lines; speaker phone and conference calling; hold buttons; auto-redial; stores 27 numbers in memory; tone/pulse dialing

WARRANTY: Two years

REVIEW: Upcoming in January 1989

Two-line phones are essential for most home offices. This NorthWestern Bell unit packs all the features you are likely to need into a compact package that is well-suited for a crowded office. Speaker- and conference-calling work well and are easy to use. The mute button that blocks outgoing sounds (such as noisy children and printers) is very useful. Auto-redial, if used in conjunction with the speaker, allows you to continue working while the telephone calls and recalls busy or unanswered numbers. Fire, police, and hospital numbers can be programmed to correspond to labeled buttons, along with 24 other one-touch numbers. A flash button facilitates use of call-waiting and other custom-calling features. Each phone line has a separate ringer control and LED indicators. And, last but not least, the phone delivers good, clear sound.

Feature-Packed FaxPhone

Canon FaxPhone 20, ($1,995)
Canon U.S.A., Inc.; (516) 488-6700

KEY FEATURES: Accepts documents 5.9-to-8.5 inches wide; accepts 98-foot thermal paper roll; broadcasts 3 pages to 16 stations; 5-page automatic document feeder

WARRANTY: 90 days

REVIEW: October 1988

The Canon FaxPhone 20 sports a telephone, a copier, and an LCD display. It offers a fine mode and polling capabilities. But so do most of its competitors. What this machine has that some of the other contenders lack is a five-page document feeder. And almost no other fax machine that lists for less than $2,000 offers broadcasting—up to three pages to as many as 16 locations. Two useful features that the FaxPhone 20 lacks are an automatic document cutter and delayed transmission capabilities. If you want these from Canon, they are available on the Canon FaxPhone 25 ($2,695). Operating the machine is simple, thanks to exceptionally clear documentation. Learning some of the more esoteric fax functions—like automatically sending documents to more than one location or through a relay unit, transmitting confidential text, and polling (requesting material from other units)—is just as easy as learning basic operations.

Bridge Between the Mac And PC Worlds

DaynaFile, ($650-$1150)
Dayna Communications; (801) 531-0600

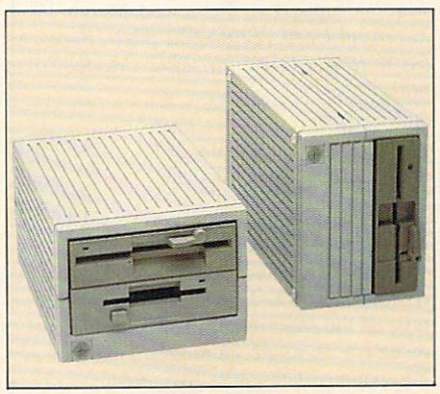
HARDWARE REQUIREMENTS: Apple Macintosh Plus/SE/II

KEY FEATURES: Plugs into SCSI port on Mac; comes with single 5.25-inch disk drive (360K); 5.25-inch drive (1.2MB) and 3.5-inch drive (720K or 1.44MB) are options

WARRANTY: 90 days

REVIEW: February 1988

If you need to move files regularly between a Macintosh and an MS-DOS computer, then you'll appreciate the DaynaFile drive system. To transfer from the Mac to IBM, simply save the text to an MS-DOS formatted disk in the DaynaFile drive in the same way you save it to a regular Mac disk. And when someone hands you an MS-DOS disk, you can load the work into your Mac. You can also load Lotus *1-2-3* worksheets directly into *Excel* on the Mac with all the formulas intact, and move *dBase III Plus* databases into *McMax* (a Macintosh *dBase* clone). The DaynaFile can also be put to a perhaps unintended use: moving MS-DOS programs from the 5.25-inch disk to the 3.5-inch disk (if you have the two-drive model). The DaynaFile is an incredibly simple but useful peripheral.



Software That Shines

Editors Pick Their Favorite Programs of the Year

What makes an Editors' Pick? Software that makes our jobs easier. Software that makes us think of working in different ways. Software that gives people the tools to operate independent businesses.

The software must be reliable, have the advanced features that add professional quality to our work, and be well-supported by dealers and manufacturers, preferably with toll-free phone lines.

Many of the programs here are upgraded versions of long-playing hits that have gotten better and better with time. That gives us confidence that the programs will continue to be improved, and that the manufacturers will allow existing owners to buy the new version for an "insider's price." As our readers do, we look at a software purchase as an investment.

EDITOR'S NOTE: *The absence of a review date indicates a new or revised program whose review is not yet published or a package whose earlier review does not represent the current release.*

Fluid Free-Form Database

AskSam v4.1 ($295). Accessible, free-form database lets you enter information as it comes to mind instead of in a set pattern. This speeds data entry and retrieval by giving you much more flexibility than a standard, structured database. Inclusion of an easy-to-use search function and hypertext capabilities for detailed cross-referencing make *askSam* a winner. *askSam Systems, (800) 327-5726. Requires: 256K IBM PC or PS/2.*

Database That Outdoes *dBASE*

DBXL v1.2c ($199). This relational database can do anything *dBase III Plus* can do (and more) — for one-third the price! One improvement over the industry standard is an intuitive menu system that has commands where you expect them to be instead of having to search far and wide. Cheap only in price. *WordTech Systems, Inc., (415) 254-0900. Requires: 512K IBM PC or PS/2; two 360K drives.*

Powerful Presentation Aid

Draw Applause v1.0 ($495). Smooth-working presentation program will spice up your charts, graphs, and reports. Add color to graphic files created with other business presentation packages, desk accessories, or *Applause*'s stand-alone drawing program. To top it off, the publisher will turn your files into slides, prints, and overhead transparencies overnight. *Ashton-Tate Corp., (213) 329-8000. Requires: 640K IBM PC or PS/2; hard-disk drive; EGA or VGA.*

Mouse-Driven Spreadsheet

Excel v2.0 ($495). Richest environment available today for number crunching. The ability to link cells among spreadsheets, a fully implemented mouse interface, and *Excel*'s graphic superiority are just a few of the many reasons we recommend it as a viable alternative to *1-2-3* —if you have the hardware to support it. Reviewed March 1988. *Microsoft Corp., (206) 882-8080. Requires: 640K IBM PC AT or PS/2 Model 50 or higher.*

Flat-File Mac Database

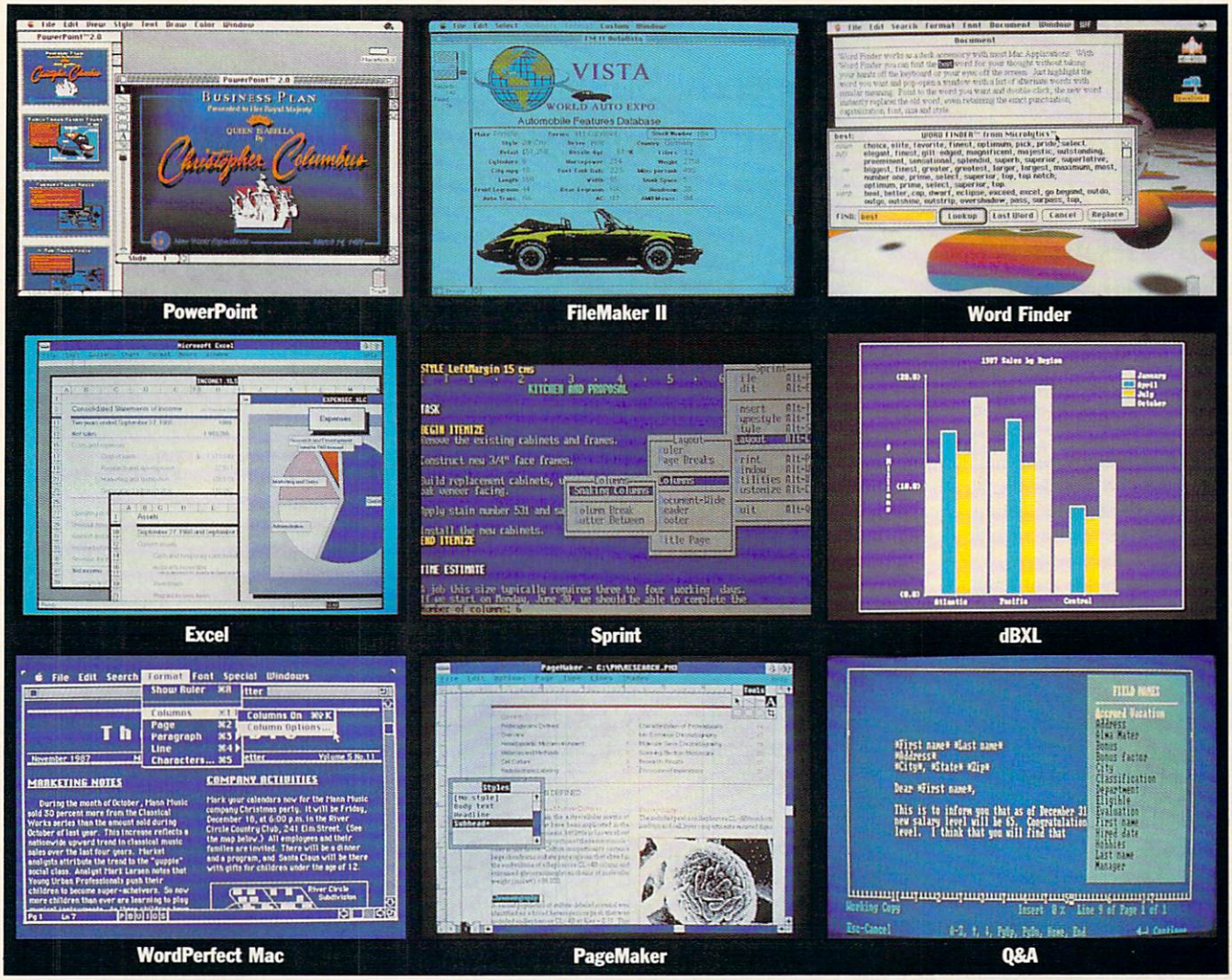
FileMaker II v1.0 ($299). This well-designed flat-file database takes good advantage of the Mac interface. Multiple ways to maneuver through the program and timesaving pop-up data-entry lists enhance operation. Can be shared with other users on LocalTalk (formerly AppleTalk) network. Prints great reports, such as invoices, including graphics. *Claris Corp., (415) 960-1500. Requires: 1MB Macintosh; two drives.*

Masterful Integrated Software

Framework III v1.0 ($695). Completely consistent integrated environment with word processor, outliner, spreadsheet, database, and communications module. Comprehensive outlining mode is ideal for organizing component documents (e.g., graphs, spreadsheet tables) while preparing letters and reports. High *dBase* compatibility. Extensive on-line help makes it easy to use. This version includes a thesaurus, regional recalculation, mouse support, and built-in e-mail capabilities. *Ashton-Tate Corp., (213) 329-8000. Requires: 640K IBM PC or PS/2; two drives; DOS 2.1 or higher.*

The Ultimate Organizer

Lotus Agenda v1.0 ($395). A new type of application best described as a "personal information manager." This database, spreadsheet, and outliner is an easy way to organize information from many sources,



and will improve your ability to make sense of random bits of data. Lotus *1-2-3* users will already know how to maneuver through *Agenda* since keyboard functions are nearly the same. You must use the program before you can fully appreciate its capabilities. *Lotus Development Corp., (617) 577-8500. Requires: 640K IBM PC or PS/2; hard-disk drive; DOS 2.0 or higher.*

Memory-Resident Spreadsheet

Lucid 3-D v2.0 ($149). Full-featured memory resident or stand-alone spreadsheet that has cell-linking functions across worksheets (hence 3-D). The abilities to cut and paste from one spreadsheet application to another and to attach notes to cells are just some of the many innovative concepts found in this great buy. Its pop-up capability makes it a hit with those who usually work with other types of programs. Reviewed June 1988. *The Lucid Group (formerly PCSG), (214) 351-0564. Requires: 256K IBM PC or PS/2; two drives.*

Simple But Powerful Communications

MicroPhone II v2.0 ($295). Complete documentation, clever record mode, and strong scripting language make this program easy and pleasurable to use. But don't be fooled; power is there if you need it. Complex functions are available but unnecessary for basic tasks in this feature-laden communications package that is simpler to use than some of today's telephones. *Software Ventures Corp., (415) 644-3232. Requires: 512K Macintosh.*

Classy Desktop Publishing

PageMaker IBM v3.0 ($795); Mac v3.0 ($595). Intuitive program that is partly responsible for the success of desktop publishing. An industry standard that can read almost every type of text or graphics file as well as most clip art and font packages. Availability of style sheets for consistent type specifications, linotronic output, and automatic wrapping of text around graphics are a few reasons why it's still ahead of the pack. Available in similar versions for both MS-DOS and Macintosh computers. Reviewed November 1988. *Aldus Corp., (206) 622-5500. Requires: 640K IBM PC or PS/2; 80286 or 80386 microprocessor; hard-disk drive; mouse; EGA, VGA, or Hercules. 1MB Macintosh; hard-disk drive; laser printer.*

PC-PC and Mac-PC Communications

PC Anywhere III v3.0 ($145). This potential life-saver lets you dial up another PC and access its hard-disk drive. Call your machine at work from home or vice versa to run software or make last-minute changes to documents. *Dynamic Microprocessor Associates, Inc., (212) 687-7115. Requires: 192K IBM PC or PS/2.*

PC MacTerm v1.0 ($99). Bridges the gap between MS-DOS compatibles and the Mac by letting you run a PC (equipped with *PC*

Anywhere III) from a Mac via modem, hardwired machines, or LocalTalk. *Dynamic Microprocessor Associates, Inc., (212) 687-7115. Requires:* PC Anywhere III; *512K Macintosh; System 4.1 or higher.*

All-in-One Mac Presentation Package

PowerPoint v2.0 ($395). All-in-one presentation package that lets you create color slides, transparencies, and charts while using a color *or* monochrome monitor. A handy outline feature speeds the creative process while a sophisticated spelling checker verifies your text. Extras include demos, templates, and *SmartScrap*, a desk accessory that helps keep track of graphics. *Microsoft Corp., (206) 882-8080. Requires: 1MB Macintosh; two drives.*

Intuitive Communications For the PC

ProComm Plus v1.1b ($75). Despite its extensive terminal emulators and file-transfer protocols, *ProComm* is for beginners as well as experts. Clearly written manuals, intuitive commands (Alt-D is Dial, for instance), and record mode simplify learning. In a short time you'll be scripting in the Aspect command language. You can even run two programs at once in this wonderful communications package that grows with you. A favorite in our office. Reviewed October 1988. *Datastorm Technologies Inc., (314) 474-8461. Requires: 192K IBM PC or PS/2.*

Combination Database & Word Processor

Q&A v3.0 ($349). One of the most friendly and easy-to-use programs in any field. Integrates full-featured flat-file database with solid word processor. *Q&A* is so extensive that you'll probably take advantage of only a fraction of its capabilities at first. Database does double duty by linking files, giving you some of the functions of a more difficult relational database. We think this is one of the best values around. Reviewed October 1988. *Symantec Corp., (408) 253-9600. Requires: 512K IBM PC or PS/2; two drives.*

Speedy Spreadsheet With Graphics

Quattro v1.0 ($248). Can do everything *1-2-3* does at less than half the price! Extensive graphic functions, minimal recalculations, and a macro recorder make it an attractive, less expensive alternative to the better known spreadsheets. Reviewed March 1988. *Borland International, (408) 438-8400. Requires: 512K IBM PC or PS/2; two drives; DOS 2.0 or higher.*

1-2-3 Add-On Expands Screen

SeeMORE for 1-2-3 v1.02c ($80). Useful Lotus add-on extends the limits of the small screen most spreadsheet users have become accustomed to. Transforms screen from 80 rows-by-25 columns to 160 rows-by-60 columns—with most graphics cards. Great for working with multiple spreadsheets. *Personics Corp., (617) 897-1575. Requires: 384K IBM PC or PS/2; CGA, EGA, VGA, or Hercules.*

It's Your SideKick—And Then Some

SideKick Plus v1.0 ($200). A bottomless list of features have been packed into this memory-resident desk accessory. Includes nine outliners, nine notepads, four calculators, and a calendar with "tickler" alarms to remind you of important meetings. Good help screens, colorful displays, the ability to customize, and superior support from the publisher make this a spectacular bargain. Reviewed October 1988. *Borland International, (408) 438-8400. Requires: 384K IBM PC or PS/2; hard-disk drive; modem (for dialing and data communications).*

Word Processor As Chameleon

Sprint v1.0 ($200). A basic word processor with unheard-of flexibility. The keyboard can easily be programmed to mimic the controls of most major word processors and spreadsheets on the market. You can also define your own menus and keystroke combinations. A spelling checker that makes corrections as you type is yet another reason to pick up on this bargain. *Borland International, (408) 438-8400. Requires: 384K IBM PC or PS/2.*

Word Processor With an Outliner

Wordbench Apple v1.0 ($149); IBM v1.0 ($189). This unusual word processor has tools to help you organize ideas before you begin writing. Brainstorming has never been easier with the ability to move freely among ideas, outlines, notes, and the document itself. Will improve your writing; a writer's dream. Reviewed this issue. *Addison-Wesley Publishing Co., (617) 944-3700. Requires: 128K Apple; 256K IBM PC or PS/2.*

Must-Have Thesaurus

Word Finder v2.0 ($60). A must-have for anyone who writes with a computer. Gets rid of the esoteric format of Roget's Thesaurus, but still gives you access to 120,000 or 220,000 synonyms (depending on which thesaurus, small or large, you install—both included). Just double-click on a word to be shown a comprehensive list of synonyms. You'll find yourself using this excellent program all the time. Reviewed July 1988. *Microlytics, Inc., (716) 377-0130. Requires: 512K Macintosh.*

Great Graphic Word Processors

WordPerfect v5.0 ($495). Does everything you want a word processor to do, and then some. Excellent graphics integration allows you to pull graphics from many sources and easily fit them on the same page as text. All this as well as great customer support make *WordPerfect* one of the best word processors on the market. *WordPerfect Corp., (801) 225-5000. Requires: 512K IBM PC or PS/2; hard-disk drive; CGA, EGA, VGA, or Hercules.*

WordPerfect Mac v1.0.1 ($395). A cousin to the IBM version, but with many features that can be found only in the Mac version. *WordPerfect Corp., (801) 225-5000. Requires: 512Ke Macintosh; hard-disk drive; System 4.1 or higher.*

New Presentation Powerhouse

Xerox Presents v1.0 ($495). Easy-to-use presentation package lets you view your whole presentation at once, instead of looking at separate pieces. Can cut layouts, backgrounds, pictures from one slide and paste them on any other slide. *Xerox Corp., (415) 498-7000. Requires: 640K IBM PC or PS/2; hard-disk drive.* ■

The Work-From-Home Holiday Catalog

This Assortment of Accessories, Hardware, and Software Will Help You Get the Most Out of Your Home Office

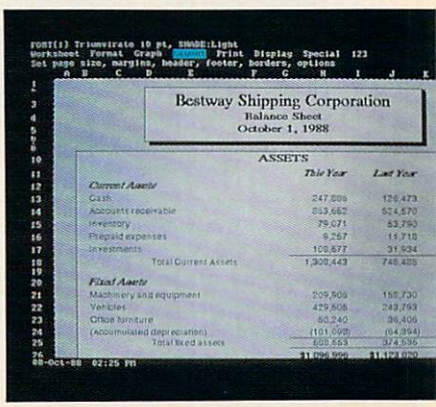
The World in the Palm of Your Hand. Wizard, a handheld electronic organizer, is an address book, a calculator, a calendar, a world time clock, and a memo pad. If that's not enough, you can purchase such add-on accessories as an eight-language translator, a time-management system, and a thesaurus/dictionary. $299. From Sharp Electronics Corp., Sharp Plaza, Mahwah, NJ 07430; (201) 529-8874.

A Scanner for All Seasons. Convert documents into computer files with the first handheld scanner that can scan a full page at once. This Mitsubishi scanner for the IBM PC/XT/AT and compatibles measures just 1.8-by-2.2-by-10.3 inches. $995. From Mitsubishi Electronics America, Inc., Computer Peripherals Div., 991 Knox St., Torrance, CA 90502; (213) 515-3993.

Compiled and written by Marie Alvich, Steven C.M. Chen, Christopher Gable, and Jim Phelan.

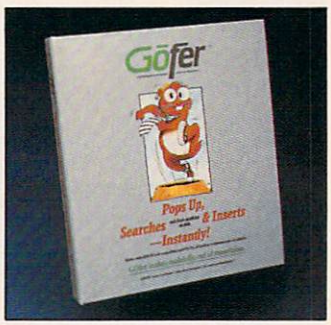
Have Fax Machine Will Travel. Weighing in at just seven pounds, the Cobra PrintPhone Model PP-110 portable fax machine offers the standard features found on desktop models. The G-3-compatible unit measures 12.25-by-9-by-3 inches, has a built-in handle, and offers an average transmission speed of 40 seconds per page. $999. From Cobra Electronics Group/Dynascan Corp., 6500 West Cortland St., Chicago, IL 60635; (312) 889-8870.

***1-2-3* Users, Read This**: *Allways*, a spreadsheet utility, lets Lotus *1-2-3* users produce high-quality printouts from their *1-2-3* worksheets. Multiple fonts, boxing and shading, double underlining, and the ability to have more than one graph on the same page will increase the effectiveness of the user's reports and presentations. $150. For 384K IBM PC. From Funk Software, Inc., 222 Third St., Cambridge, MA 02142; (617) 497-6339 or (800) 822-3865.



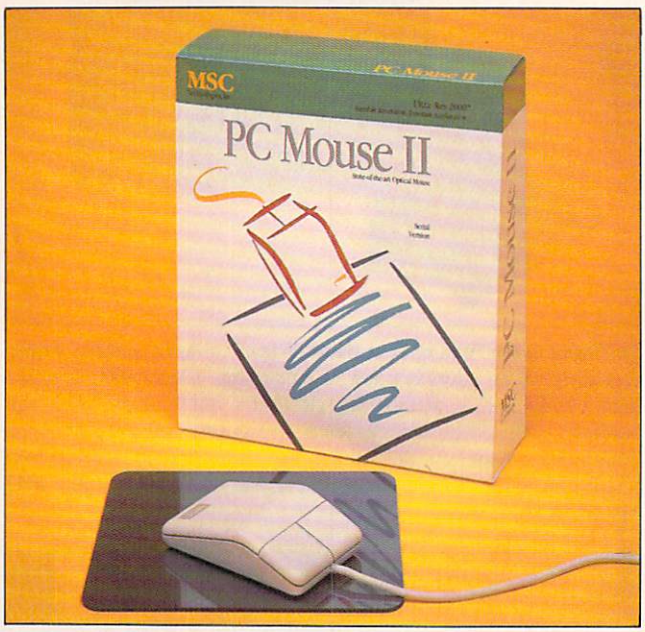
Park These Wheels on Your Desk. This vehicle is loaded with 10 desk accessories—the spare tire is a tape measure, the rear bumper is a pair of scissors, etc. $19.95. From Reliable Home Office; (800) 621-4344.

On the Track of Lost Files. If you've ever lost files on your hard-disk drive, you know why you need *GOfer*. This text-retrieval software for the 256K IBM PC and 512Ke Macintosh searches hard-disk drives for particular words or phrases. $80. From Microlytics, Inc., One Tobey Village Office Pk., Pittsford, NY 14534; (800) 828-6293.



Picture Them. Here's the phone we've been hearing about since the sixties. The Visitel picture phone lets you *see* the person on the other end of the phone. This system, which attaches to your telephone and has a 4.5-inch black-and-white monitor, lets you exchange video snapshots with other video phone owners. $399 each. From Mitsubishi Electronics America, Inc., 3350 Scott Blvd., Bldg. 49, Santa Clara, CA 95054; (800) 422-5862.

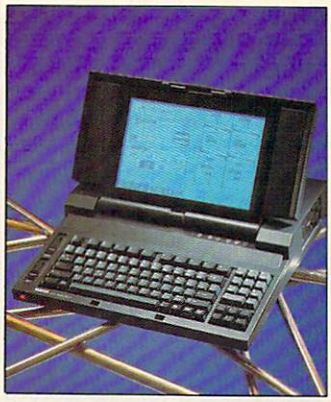
It's Expandable, It's Adjustable, It's . . . Furniture! Increase comfort and productivity while you work with DataBord 920 modular furniture. Adaptable, laminated furniture that can grow with your needs. $125 to $692. From Krueger Commercial Division, P.O. Box 8100, Green Bay, WI 54308; (414) 468-8100.

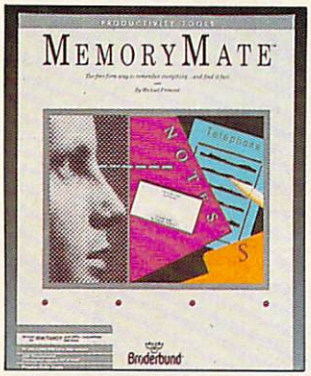


High-Velocity Rodent. The optical PC Mouse II provides speed and accuracy for the newest mouse-driven software. Comes with a durable, light-weight, and smaller-than-normal mouse pad, which saves valuable desk space. $149. From MSC Technologies, Inc., 47505 Seabridge Dr., Fremont, CA 94538; (415) 656-1117.

Listen to Good Advice. Practical advice on working from home from Paul and Sarah Edwards, home-business experts. Their audiotape, "How to Succeed at Working from Home," provides tips to help you live and work under the same roof—from learning to be your own boss to furnishing a home office to financing a business. $10. From TDM/McGraw-Hill, 560 South State College Blvd., Fullerton, CA 92631; (800)-2McGraw.

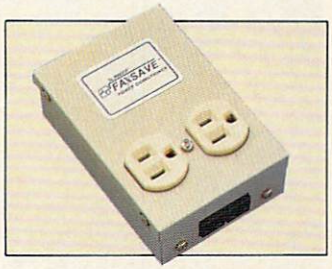
Musically Talented Portable Computer. The Yamaha C1 Music Computer, an MS-DOS compatible with special features that will appeal to musicians, has a 10MHz Intel 80286 microprocessor, a full-size keyboard (with music symbols, too), LCD display, and a whopping 11 MIDI ports. $2,995 (two floppy-disk drives) or $3,995 (one floppy-disk drive and one 20MB hard-disk drive). From Yamaha Corp. of America, 6600 Orangethorpe Ave., Buena Park, CA 90620; (714) 522-9011.



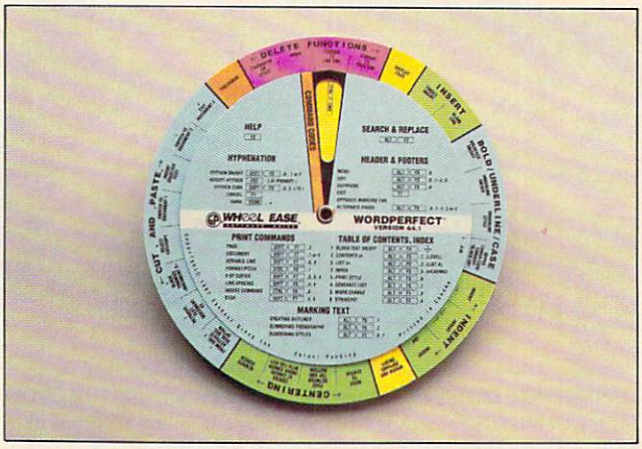


Memory Jogger. Dump your jumbled notes into *MemoryMate*, an electronic memory-resident file that organizes miscellaneous information by indexing and cross-indexing every word. It also politely reminds you of appointments, notes, phone numbers, memos, and deadlines. For 256K IBM PC. $70. From Broderbund Software, Inc., 17 Paul Dr., San Rafael, CA 94903; (415) 492-3200.

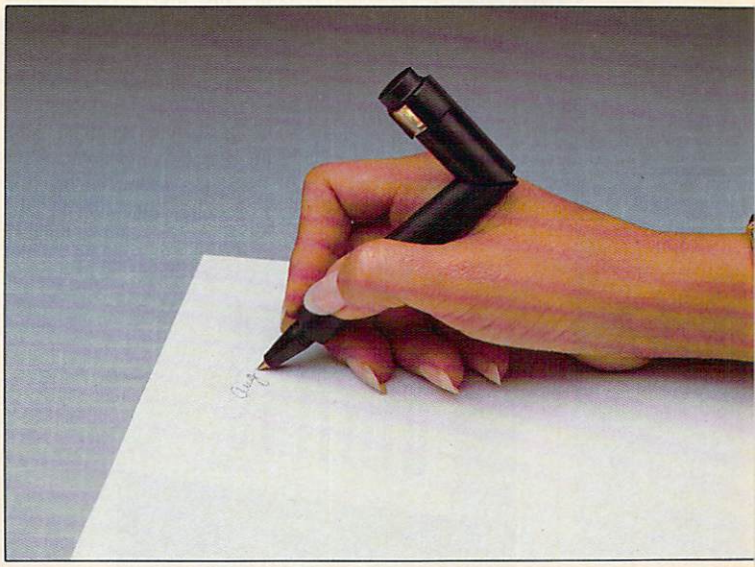
Protect Your Fax. Guard sensitive fax equipment from power surges and electrical noise with the FAXSAVE FG2 surge suppressor. $44.95. From SL Waber Inc., 520 Fellowship Rd., Suite 306, Mt. Laurel, NJ 08054; (609) 866-8888 or (800) 257-8384.



Personal Service from the King of Copiers. Xerox is now selling two personal copiers for the home office. The Xerox 5008 R/E, shown here, accepts up to 10-by-14-inch originals and reduces and enlarges. Color cartridges are available in red, blue, brown, and green. $1,695. From Xerox Corp., 100 Clinton Ave. S., Rochester, NY 14644; (800) 832-6979.



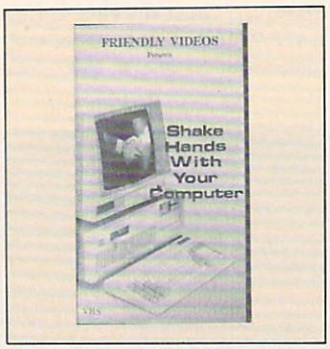
Greasing the Wheels of Software Documentation. With Wheel Ease Software Guides, forget about searching through bulky software manuals to recall a command. Just turn the wheel, look inside the window, and you'll see what key (or combination of keys) to hit. Available for 10 popular software packages, including *MS-DOS*, Lotus *1-2-3*, *WordPerfect*, and *dBase III*. Great stocking stuffers for IBM PC and compatible users. $12.95 each. From GP Technologies Inc., 160 Meister Ave., Somerville, NJ 08876; (800) 523-1809.



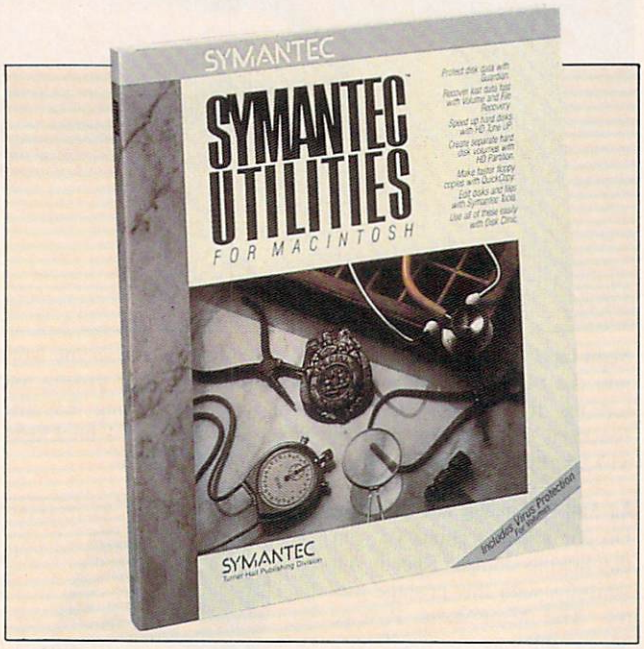
Night Light Plus. If your desk lamp keeps others awake as you work into the night, the Z-Pen should put an end to their tossing and turning. It's a pen with a flashlight for night writing that also functions as a regular or Phillips screwdriver and a booklight. $14.95. From Reliable Home Office; (800) 621-4344.

An End to Licking and Sticking. Do you spend a chunk of your day licking stamps? Speed your mailings with this postage meter. The Mini-Matic Postage Meter will pay for itself each month with the time it will save you. Rent it for $9.75/mo. 1st yr., 11.75/mo. thereafter. From Pitney Bowes, Inc., Corporate Headquarters, Stamford, CT 06926; (800) 672-6937.

HOME-OFFICE COMPUTING Subscription. Each month, HOME-OFFICE COMPUTING magazine offers information and inspiration to help you save time and money and work more effectively. In each issue, you'll find hardware buyer's guides, software reviews, home-business and finance advice, profiles, and more. $19.97 for a one-year subscription (12 issues). P.O. Box 53561, Boulder, CO (800) 322-3561.

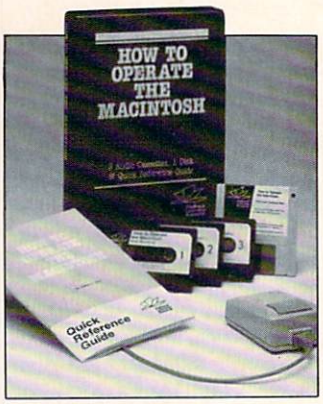


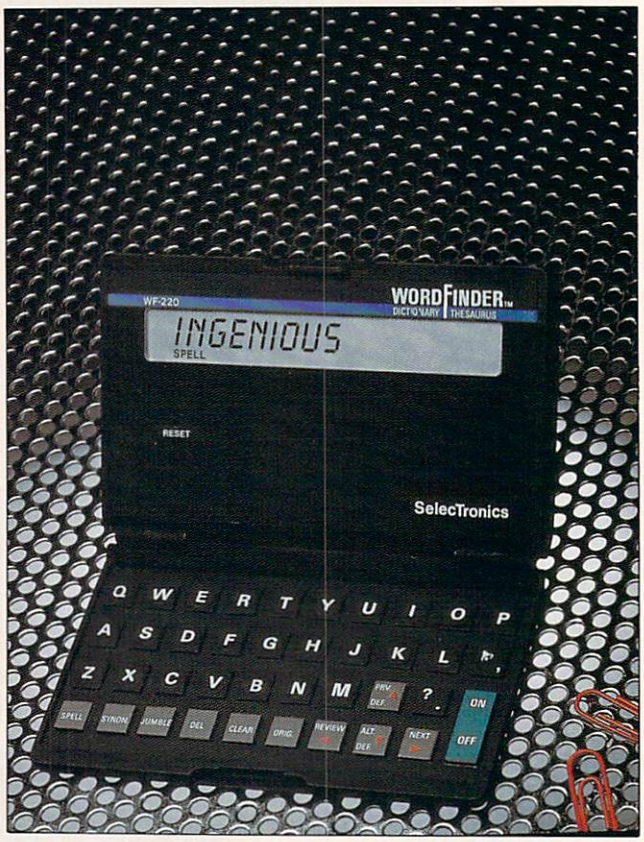
Be Pleased to Meet Your Computer. Ease yourself into the world of computing with Friendly Video's "Shake Hands with Your Computer." This 53-minute video gives instructions on the care, feeding, and use of IBM PC/XT/AT and compatible computers. Available in VHS and Beta formats. $30. From Friendly Videos, P.O. Box 5684; Garden Grove, CA 92645; (714) 898-4055.



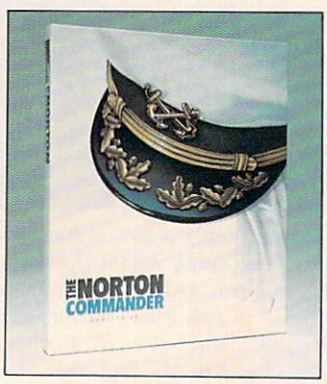
Hard-Disk Guardian Angel. If you back up your hard disk as rarely as most people, a hard-disk crash could be devastating. *Symantec Utilities* for 512K Macintosh, Macintosh Plus, SE, and II owners restores lost hard-disk data, guards against viruses, makes fast floppy copies, and more. $100. From Symantec Corp., 10201 Torre Ave., Cupertino, CA 95014; (408) 253-9600.

Master Your Mac. Rein in your Macintosh SE or Plus with "How to Operate the Macintosh" audiocassette tapes. Learn to manage files, use desk accessories to your advantage, and more. Package includes three two-hour cassettes, a quick reference guide, and a training disk. $89. From Flip-Track Learning Systems, 999 Main St., Suite 200, Glen Ellyn, IL 60137; (312) 790-1117 or (800) 222-3547.





Gift of Gab. WordFinder, an electronic dictionary/thesaurus, puts 100,000 spelling words and 220,000 synonyms into your shirt pocket. Improve your prose and expand your vocabulary with the touch of a button. $99.95. From SelecTronics, Inc., 701 Decatur Ave. N., Bldg. 204, Minneapolis, MN 55427; (612) 545-6823.

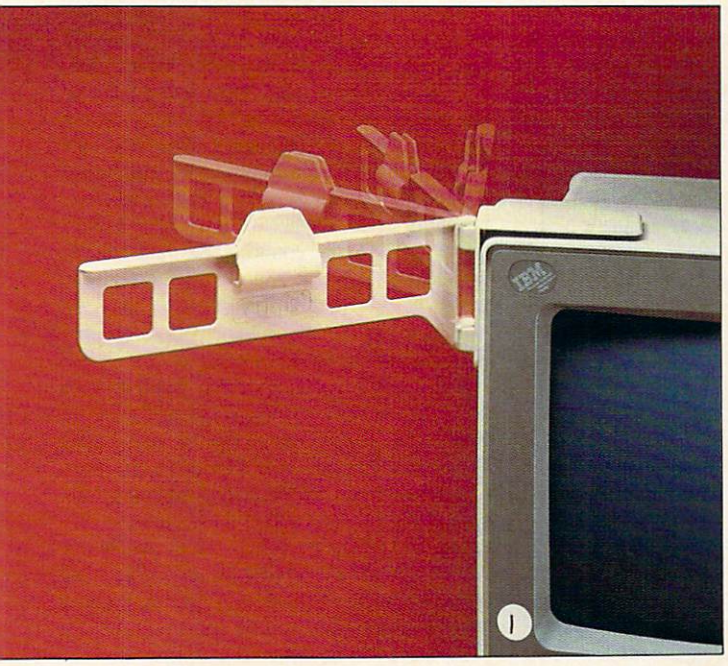


Making DOS Friendlier. Here's the most recent release of *Norton Commander* v2.0, the all-in-one utility that makes DOS easier to live with. Pull-down menus, a hard-disk manager, and the ability to view Lotus *1-2-3* and *dBase III* files are just a few of the included goodies. $89. From Peter Norton Computing, Inc., 2210 Wilshire Blvd., Suite 186, Santa Monica, CA 90403-5784; (213) 319-2000.

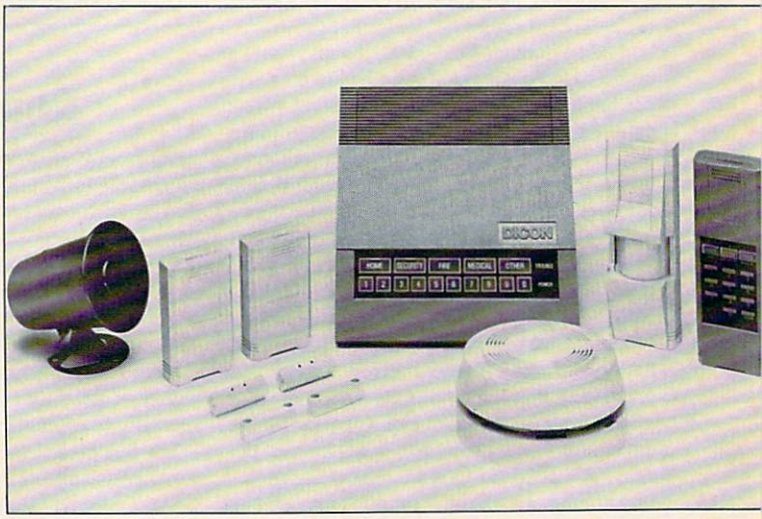
Business Phone that Grows with You. Your home office will be ready for expansion with the AT&T System 2000, a one- or two-line telephone/intercom system consisting of one master phone and up to five phone extensions. Offers paging, monitoring, a speaker phone, automatic line privacy, and 16-number memory dialing. $350; $220 per extension. From AT&T, 4 Campus Dr., Rm. N2C06, Parsippany, NJ 07054; (800) 222-0300.

Project a Positive Image. Your presentations will be more impressive and effective if you use the QA-50 LCD Computer Projection Panel Display to project the image that's on your monochrome or color monitor onto the silver screen via an overhead projector. The panel is IBM compatible and a portable 6.7 pounds. $1,395. From Sharp Electronics Corp., Sharp Plaza, Mahwah, NJ 07430; (201) 529-8874.

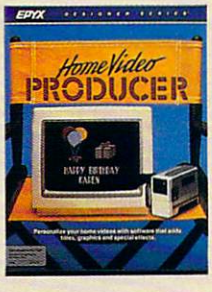
Shred Confidential Documents. A sure and easy way to dispose of classified or personal documents. Panasonic's MP-S20 Personal Shredder takes up no more space than a waste paper basket. $399. From Panasonic Industrial Co., 2 Panasonic Way, Secaucus, NJ 07094; (201) 348-7817.



Hold It. Free up desk space and boost your typing speed with the Curtis Clip. This copy holder, which attaches to your monitor with Velcro strips, holds papers at eye level. $6.95. From Curtis Manufacturing Co., 30 Fitzgerald Dr., Jaffrey, NH 03452; (603) 532-4123.



Smart Security System. Need intelligent protection for your high-tech home office? This wireless Dicon 9000 security system will automatically call various phone numbers in response to different emergencies. An affordable security system made to be user-installable. $494. From Dicon Systems, 631 Executive Dr., Willowbrook, IL 60521; (800) 387-2868.



Video Production Assistant. *Home Video Producer* lets you add text and graphics to Camcorder creations. Use it to spruce up presentations and personalize vacation videos. For the 128K Apple, 512K Apple IIGS, C 64/128, and 256K IBM PC. $50. From Epyx, Inc., 600 Galveston Dr., Redwood City, CA 94063; (415) 366-0606.

How Three Families Built Thriving Businesses

It's All Relative

BY CAROLYN HURST

It's a common scenario: Mike and Jackie have been briefcasing work home from their respective jobs for the past few years. The dual income has bought them the trappings of success: a house, great vacations, two cars. Yet, late one night in their home office, Jackie peers around her monitor and calls over to Mike, "What do you say I quit my job and start my own consulting business? I'd rather be doing this for *us*."

And so another dual-career couple starts a home-based business. While Jackie works to get her fledgling firm off the ground, Mike continues to pull in a steady income from his job. Jackie's brother, a sales representative, brings in new clients and earns a commission for contracts signed.

"We see it all the time in our focus groups," says Tom Miller, director of the ESU Telework Group of Link Resources, the New York-based research firm that publishes the annual Work-At-Home Survey. "Eventually, the entrepreneurial effort becomes so interesting that the employed person quits to join the spouse. He or she quits partly for the adventure," he explains, "and in part because it's good business."

Although not all these families may end up building empires as rich and powerful as the Rockefellers', they *are* carving profitable niches for themselves in the business community—not in high-rise office buildings, but from high-tech offices in their own homes. In pursuing independence, these entrepreneurs have taken control of their own lives; they have specific lifestyle and business goals in mind. Miller says that the quest for adventure, autonomy, more satisfaction from their work, greater control of their time, and the convenience of a built-in staff are the reasons families most often cite for going into business together.

Interviews with three such families yielded some surprises and great variety. In each of the three families, both the husband and wife share in running the business. All of the couples have children, whose ages and involvement in the businesses vary widely. George and Catherine Mathiesen, owners of Chicama Vineyards on Martha's Vineyard, have employed all six of their offspring at one time or another over the past 17 years. Ken and Donna Jackson have managed their thriving electrical-contracting business for 12 years. Although their 17-year-old son elected not to join the family payroll, the Jacksons do employ both Ken's sister-in-law and his niece. Finally, we spoke to outdoor writer/photographer Judd Cooney and his wife, daughter, and son-in-law, who have found a way to live and work profitably in the heart of the Colorado Rockies.

CAROLYN HURST *is a freelance writer and photo editor living in Poulsbo, Washington.*

Family Roundtables Run Martha's Vineyard Winery

"Our policy of making most decisions on a roundtable basis is a big advantage in a family-owned business," says Tim Mathiesen. "If something goes wrong, we all share in the blame. And, when things go right, there's a greater sense of pride because we were all involved in making the decision." Tim's mother and father, Catherine and George, are the principal partners in a business that produces and markets wines and specialty foods under the Chicama label.

The Business. Located on Martha's Vineyard, an island off the Massachusetts mainland, Chicama Vineyards produces about 20,000 gallons of wine a year—about 80,000 bottles. About 15 of the vineyard's 32 acres support the demands of Chicama's current annual wine production.

Most of the wine bearing the Chicama Vineyards label is sold within the state of Massachusetts for $6 to $20 per bottle—a fair portion through the winery's own gift shop. The Mathiesens reserve a small amount of the annual wine production to make Chicama Vineyards' 3,500 cases of specialty food products: 25 flavors of vinegar, 3 flavors of mustard, and 2 flavors of salad dressing. New to the line are two flavored cooking oils. Gourmet and other specialty food shops retail the condiments, principally in New England, although the line is catching on in other markets across the country.

Although the entire family is involved in planning, George and Catherine, as owners, have the final word in the company's business decisions. "George and I decide what wine will be bottled and when," says Catherine. "We're responsible for the bills, and we pick rocks out of the vineyards. We do whatever needs to be done." The winery is a goal the couple set out to reach years ago when they lived in California and George was still working as a vice-president at Westinghouse Broadcasting. "Before it ever became the big thing to do, Catherine and I would often travel to the wine country. We had friends who had a vineyard, and we often thought it would be nice to have our own someday."

When that day arrived, the couple decided not to locate the business in California. "We knew the kind of grapes we wanted were being grown in the Finger Lakes region of New York," says George, so the Mathiesens began researching other places on the East Coast where the weather and soil conditions were desirable, and where they felt the quality of life met their goals. That search led them to Martha's Vineyard and a piece of property along the ancient Chicama Path, a trail used centuries ago by Indians traveling to their fishing grounds. "Chicama is thought by historians to mean 'fishing place,'" says George.

Using their savings as start-up capital, the family established the vineyard in 1971 and sold the first bottle of Chicama wine in 1973.

Chicama Vineyards owners George and Catherine Mathiesen, daughter Lynn Hoeft, son, Tim, and Lynn's daughter, Rosemary, during the harvesting season.

PHOTOGRAPH BY BRENDON POH

The flavored vinegars, the hallmark of the specialty food line, followed eight years later.

The Technology. The nerve center of the Mathiesens' business, where George and Catherine discuss business strategies and make decisions, is a former spare bedroom of their house, just out of sight of the winery building. Working on a Tandy 1000 and an NEC P-6 printer, George keeps the books, pays the bills, and processes data, such as the myriad government reports inherent to the highly regulated wine industry.

"For about seven years, we had a Tandy TRS-80, and we were very satisfied with it," says George, "so we decided to stay with Tandy when we were ready to upgrade our system. We bought one of the first Tandy 1000s. It fits our current needs very well."

SNAPSHOT

BUSINESS: Chicama Vineyards, producers of wine and specialty foods.

ESTABLISHED: 1971

RESIDENCE: Martha's Vineyard, Massachusetts

FAMILY MEMBERS IN BUSINESS: George and Catherine Mathiesen; sons Tim and Sean; daughter Lynn Hoeft.

EQUIPMENT: Tandy 1000 computer; Epson MX-80 and NEC P-6 printers.

SOFTWARE: DacEasy, MultiPlan, PC Write.

RX FOR SUCCESS: "Gradual expansion, as profits allow, and diversification—on a theme. Wine is not only a product by itself; it is an integral part of our entire food line."
—GEORGE MATHIESEN

The company uses *DacEasy* for accounting and Microsoft *Multiplan* for the special reports required by the state and federal governments and to track the company's expenses and checks. General business correspondence is composed with *PC Write*, and the payroll is handled by a custom program that George wrote.

The Family. When the winery was established in 1971, all six of the Mathiesen children were involved in the business. "Often, when we've left, we've gone into other aspects of the industry," says the couple's 31-year-old son, Tim, the winery's manager. "Then when we return, we're able to bring new knowledge back to the business." Tim, for example, gained valuable marketing experience working at Sherry Lehmann, one of New York City's premier wine shops.

The Mathiesens' daughter, Lynn Hoeft, and son, Sean, are also on the payroll. Lynn handles most of the chemistry involved in

wine production, testing for alcohol level and phosphate balance, and analyzing each wine for proper color. She learned the champagne business while working for Domaine Chandon, a champagne winery in California's Napa Valley, and has taken charge of Chicama's sparkling wine, Sea Mist. Drawing on her industrial design education, Lynn designed the labels for Chicama Vineyards' wines and food products. Like Tim, Lynn gained valuable knowledge on the retail level working at Sherry Lehmann. Sean, a college student in Boston, returns to the family business most weekends to "help out wherever he's needed," says his mother. Although he knows a great deal about vineyard operation, Catherine predicts Sean will pursue other interests upon graduation.

Catherine says she and George "pretty much live the business. If I said we thought about it 24 hours a day, that might be a slight exaggeration. It's probably only 19-and-a-half hours a day." Although the couple occasionally makes business decisions after the children return to their own homes at night, Catherine stresses that opinions are sought from all.

"Working here is also more fun than working anywhere else," Tim emphasizes. "Maybe that's why we keep coming back."

From the beginning, George and Catherine have treated their children as valued employees. "We've always paid them whatever wage we paid our other employees," George explains. "And, we've tried to keep our wages up to the standard for similar work in our region so they wouldn't feel they were being penalized financially by working for us. As far as the business operation is concerned, the children are full participants."

Both George and Catherine hope that at least one of their six children will carry on with the business, but that may be a fair piece down the road. "You know, I don't really think much about retiring," says George.

Work Is Play in the Heart of the Colorado Rockies

Judd Cooney is a man in an enviable position. He has taken his hobbies—writing, photography, fishing, and hunting—and turned them into a successful business that nets his family around $60,000 per year. It was a move that proved successful from both a professional and personal standpoint. His name is familiar to thousands of armchair outdoor enthusiasts, who, unlike Judd, are forced by work schedules to read about most of the fishing and hunting trips they would like to take. Now, Judd's byline and photo credits appear regularly in more than a dozen outdoor publications, including *Field & Stream*, *Fishing & Hunting News*, *Outdoor Life*, and *Peterson Hunting*. He is also a monthly columnist for *American Hunter Magazine*.

The Startup. Judd gave up a 13-year career with the Colorado Division of Wildlife to pursue a living as a freelance writer and photographer a decade ago. Working out of two rooms in the Pagosa Springs, Colorado, home he shares with his wife, Diane, Judd initially concentrated on writing. Diane proofread and retyped the bulk of his articles, many of which dealt with the sporting opportunities available in their Rocky Mountain backyard. The couple also ran a guiding and outfitting business, with Judd serving as chief guide and Diane as camp cook.

Until about four years ago, Judd viewed his photography only as a way to illustrate his articles. It wasn't until a plea for help came from one of his editors that he realized the potential for the numerous images he had accumulated. "The editor needed a shot of a specific subject. I think he would have been satisfied with one halfway decent image. I sent him 20 good, sharp photos."

When the editor called back to express his thanks, he asked Judd how many photos he had. It was a question Judd could not accurately answer. "I'd always told people I had 10,000 slides," he remembers. "When I went and counted them, I found I had 80,000!"

When the Cooneys' daughter Lisa, now 25, came home from college, she and Judd began sorting through the vast collection of photos. "The name of the game in photography is marketing," Judd says. "So while we were cleaning out the files, we mailed a flier to editors, advertising agencies, and other potential markets." As a result of continuing efforts, photo sales have been almost doubling every year. Last year, the company netted $20,000, or about 30 percent of its income, from the sale of the outdoor photographs.

The Technology. The family also began shopping for a computer. "I knew I could write with a typewriter," Judd notes, "but I needed a computer to keep track of 80,000 photos." The Cooneys purchased a Kaypro 10, an old CP/M machine, and a Juki 6100 printer, both of which worked well for them until last year. "When we reached 100,000 slides, it was taking the Kaypro too long to call them up," says Judd. Since most of the publications he was writing for were using MS-DOS-based systems, the family felt a switch would "make us more compatible with the rest of the world," as Lisa explains.

The Cooneys have now upgraded to a Northgate 286-I, an AT compatible, and have replaced their old printer with the speedy 24-pin Epson LQ-1050. Lisa, who handles most of the office duties, says the changeover has been time-consuming but well worth the effort: "I was able to take quite a few of our old files 60 miles west to Durango, where the local computer shop ran them through Uniform and converted them to MS-DOS. It only took about five minutes." Lisa estimated that the same job would have taken her three or four months, had she reentered all the data manually.

The Cooneys use *WordStar* 4 for word processing and are switching from *Datastar* and *Calcstar* to Microsoft *Works* for their bookkeeping functions. Their vast photo library is cataloged on *Phototrack*, a specialized database which lets the Cooneys use a combined abbreviation and number coding system. For example, a slide of a running whitetail deer, coded WTRU50-20, might be found in a file coded WTRU—WHITETAIL RUNNING/ 50, meaning that the slide is located in the 20th slot of the 50th slide sleeve under that subject heading. "That's the beauty of our filing system," Lisa explains. "Every slide is assigned a unique code and a unique location in our files."

Pros and Cons of Togetherness. The fourth working member of the family is Lisa's husband, Mike Kraetsch. "He came to work for me," Judd laughs, "and ended up marrying my daughter." Mike is gradually taking over the $30,000 guiding and outfitting portion of the business and, under his father-in-law's tutelage, is honing his photography and writing skills. Both Lisa and Mike have had articles published in outdoor magazines.

For the most part, the family members enjoy working with each other. "The biggest advantage in working for my dad is the flexibility," Lisa says. "If I need to take three weeks off, I can usually do that without having to worry about being fired. I try to keep my demands in balance, although there probably have been times I've taken advantage of the situation."

Mike, who says that he and Lisa would try to keep the business running if Judd should ever retire, notes: "I came to work for Judd before I ever knew Lisa. That made a big difference. I'm not just the son-in-law who had a job created for him.

"This job is something every guy my age who likes the outdoors dreams of," Mike, 26, continues. "I know I'm getting more experience and a better education working for Judd than I would have on my own."

Sometimes, however, too much togetherness can wear thin. "When you work with the same people you go home with, you have

SNAPSHOT

BUSINESS: Judd Cooney Photo Enterprises, freelance writing, photography, guiding, and outfitting.

ESTABLISHED: 1978

RESIDENCE: Pagosa Springs, Colorado

FAMILY MEMBERS IN BUSINESS: Judd and Diane Cooney; daughter Lisa and son-in-law Mike Kraetsch.

EQUIPMENT: Northgate 286-I computer; Toshiba 1100 laptop; Epson LQ-1050 printer.

SOFTWARE: WordStar 4; Microsoft *Works*; *Phototrack*.

RX FOR SUCCESS: "Pursue an interest you love." —JUDD COONEY

PHOTOGRAPH BY ERIC LARS BAKKE

Newborn Zane August Kraetsch joins his father, Mike, mother, Lisa (right), and grandparents Diane and Judd Cooney on a high-mountain photo shoot.

to be careful that you don't get tired of each other," says Lisa. Fortunately, the nature of the Cooney's business provides its own outlet. When the walls of the office start to close in, each member of the family is free to take off in pursuit of one more article, one more photo.

This type of freedom is the part of the business Judd enjoys most. Like most of us, he is happiest when he's pursuing the interests he loves—and the fact that he gets paid for those interests makes for a good marriage between hobby and career. So, while Judd the outdoorsman may spend his day sitting in a photo blind, waiting for a wild turkey to step in front of his camera, Judd the businessman doesn't spend those hours idly. If the shutter isn't clicking, his fingers are flying over the keys of his Toshiba T-1100 laptop computer as he writes next month's column.

Kentucky Couple's Energy Electrifies The Business

"The money has been wonderful. We're able to take nice vacations and drive the kinds of cars we want," says Donna Jackson, "but I guess I resent the time that the business demands. We rarely watch television and we don't socialize very much or go out very often." Donna and her husband, Ken, have been running a rapidly growing electrical contracting, heating, and cooling business from an office in their Lexington, Kentucky, home for the past 12 years. Donna notes that the time demanded by the business even keeps her from spending much time with her parents. "I don't even think I want them to know how many evenings we spend working," she reveals. "I think they'd worry about us."

The Business. Ken, who supervises a crew of 12, specializes in custom homes in the Lexington area. The homes he works on sell for an average of $400,000, although he has also worked on several million-dollar homes. "My fees range all the way from a $35 service call to a $150,000 project," he explains. He completes an average of 200 jobs a year and in the course of his career, has worked on more than 2,300 homes.

Donna has kept the company's books from the beginning. Even though she is now a full-time elementary school teacher, she continues to function as the company's bookkeeper. "I guess I'm a controlling person," she laughs. "I want to know what's going on. I'm not sure I would want anyone else doing the books. I'm afraid they wouldn't be as meticulous as I am."

The Technology. The Jacksons, relative newcomers to the computer age, had a rocky introduction to technology. Ken purchased a Datalex (IBM compatible) and a Panasonic KXP1592 printer last year. After several months of working with the computer, Ken says, "I wished I'd never bought the thing. It was costing me so much time and effort, and I still couldn't get it to do what I wanted it to."

Ken and Donna's chief complaint was that the software on the market—particularly in the area of job estimating—did not fit the bookkeeping system they had been using successfully for more than a decade. "I didn't want to have to change the way we'd been doing things just to make it fit a computer program," he says. To the Jacksons' rescue came Janet Piercy, co-owner of AB Marketing, a computer consulting firm in Lexington. She set up a database in *dBase III Plus* that would let them computerize their bookkeeping system without having to totally revise their records. The couple also uses *Leading Edge Word Processing* for correspondence, billing, and preparing estimates.

"Now I can see progress," says Ken. Even though the couple spent almost every evening last spring and summer converting their books and records to electronic files on the computer, both feel automating will help them save time down the road.

The Family. For the past three years, Ken's sister-in-law, Patsy Jackson, has been handling the bulk of the business's telephone duties. When Ken leaves his office in the morning, he puts his business phone on call forwarding. Working out of her own home, Patsy answers all incoming calls. She relays important messages to Ken and his workers on a two-way radio system.

Patsy also orders supplies for the business, contacts builders, schedules electrical inspections, and makes other business calls. When Ken returns home in the evening, he takes the phone off call forwarding. "It doesn't cost me a great deal of money," he says, "and it's a nice job for Patsy because she is able to do it from her home." Patsy receives a weekly salary and expenses.

The demands of two full-time jobs were taking their toll on Donna until earlier this year, when the couple hired their niece, Melissa Dicken, 28, to help with clerical duties and household chores. "Since whomever we hired would be working in our home, often when we weren't around, we wanted someone we could trust," Ken explains when asked why he chose a family member for the position. Melissa is paid by the hour and generally works four 10-hour days a week. Her presence has reduced the stress on the

FAMILY BUSINESS CHECKLIST

How can you effectively run a business and maintain family harmony? Which offspring is best for which task? What if your father is your employee? These are among the peculiar challenges family businesses confront every day. It is the added dimension of family—with all of its potential for joy and for conflict on the most personal of levels—that sets these businesses apart from their corporate world counterparts.

Admittedly, management styles must be as dynamic as the families they serve. But to help you get on track, here's a checklist adapted from one published by the Small Business Administration (Management Aid Number 3.002).

Keep talking. Above all, communicate. Test out the feasibility of your goals and plans by discussing them with others and ask for their ideas. Assemble the family periodically to review marketing and distribution policies and procedures, to review operations with the objective of reducing costs, and to review profit and loss statements and other financial reports. Discuss, write down, and hold to monthly and yearly objectives.

Be businesslike. Leave emotional baggage outside the office. Chances are, your competition won't be continuing last night's spat in the boardroom. Be prepared to compromise and give each family member the professional respect to which he or she is entitled. Establish work policies and write them down. Set up an organization chart with duties specified for each member of your staff and stick to it.

Encourage participation. Don't try to do it all yourself. If you're the CEO, use your time on high-priority tasks and delegate other tasks to your support staff. Create job descriptions for key personnel and set times for periodic performance reviews.

Be fiscally responsible. Your family's livelihood is at stake. Establish a long-range business and financial plan and seek legal and financial advice from an attorney or an accountant before committing to major transactions. Be sure to document agreements with customers and suppliers, no matter how insignificant they seem. Review operations on a regular basis with the objective of reducing costs. Keep personal income and expenses separate from business finances.

Provide for growth. Develop opportunities for family members to grow individually and professionally. Establish policies and plans for motivating family employees, but be prepared when key personnel stop contributing or decide the family business is not for them.

Plan for the future. Set up an adequate health and unemployment benefit plan for family members. If you're the CEO and owner, obtain life insurance so your family is protected in the event of your death and plan for succession in the event of the death of any key family member.

Remember yourself and your family. If you can't establish regular business hours, make time to be by yourself and to spend with your family apart from work. Since everyone's together much of the time, allow for outside interests and hobbies that can foster creativity and help keep a fresh perspective toward work and family.

Melissa Dicken, Ken and Donna Jackson, and Ken's sister-in-law, Patsy (left to right), survey construction of their new home-office headquarters.

PHOTOGRAPH BY PATRICK L. PFISTER

Jacksons and has helped the company run more efficiently.

The Time. Ken admits that the days spent managing Kenneth Jackson Electric, Inc., begin early and end late. "My hours are from the time my first customer gets up in the morning until my last customer goes to bed at night," he says. Their business telephone generally begins ringing at 7 a.m. and doesn't quiet down until about 11 in the evening. In spite of the constant interruptions and long days, both Ken and Donna agree that they would rather run the business from their home than move the office. "I really don't want an office outside the home," Ken explains. "This way at least I'm able to see my family and still get my work done."

"We have worked awfully hard, but we've reached the point where we wanted to be when we began. I wouldn't give it up for anything," interjects Donna.

"What's helped my company more than anything else is the fact that my wife has been so supportive of the business," continues Ken. "We're closer than ever, and Donna has input on every decision that's made. We know that we can be together 24 hours a day and still maintain a great relationship."

SNAPSHOT

BUSINESS: Kenneth Jackson Electric, Inc., electrical contractors.

ESTABLISHED: 1976

RESIDENCE: Lexington, Kentucky

FAMILY MEMBERS IN BUSINESS: Ken and Donna Jackson; Ken's sister-in-law, Patsy Jackson; Ken's niece, Melissa Dicken.

EQUIPMENT: Datalex (IBM compatible) computer; Panasonic KXP1592 printer, 2-way radio.

SOFTWARE: dBase III Plus, Leading Edge *Word Processing.*

RX FOR SUCCESS: "A good marriage, the ability to communicate, and a high energy level."
—DONNA JACKSON

OVER 3 MILLION STRONG

The Mathiesens, the Jacksons, and the Cooneys have plenty of company. According to Link Resources' 1988 National Work-at-Home Survey, almost 25 million Americans conduct part or all of their income-producing work from home. Of that total, a growing number operate businesses out of their homes. Miller estimates somewhere between three and four million of those businesses are true, family-run operations.

There is no typical family operating a typical family-run business. The data collected by Link Resources does indicate, however, that the families starting businesses this year are slightly younger than those in years past. Many of them balance the needs of very young children with the demands of work. "Of the families who say they have children under the age of 18," reports Miller, "two-thirds of them have children under six."

Perhaps the "super-Mom" syndrome of the early 1980s is being transformed into the "super-family" of the 1990s, with home-based businesses that allow families to share quality time in quantity. ■

Upgrading Your Computer

PART TWO

APPLE II

Add Memory, Speed, and a Hard Drive To Your Apple IIc or IIe

BY CHARLES H. GAJEWAY

Sooner or later, it happens. You try to load a spreadsheet—beep—you're out of memory. You try to save a file—beep—the disk is full. A search-and-replace takes six minutes. The report your client needed yesterday is taking hours to compile. You realize you have outgrown your dependable, expensive Apple II, and no matter how much it helped you before, it's holding you back now.

You need more performance, and there are only two ways to get it. You can either switch to a higher performance computer, selling your Apple to cut the cost of the switch, or upgrade your Apple II, adding speed, memory, and disk storage.

Switching computers may be your best solution. But when you factor in the cost of a new computer, replacement software, and the time required to transfer your data and learn the new programs, it is also an expensive solution; it will cost more than $1,500 to trade to either an IBM compatible or Macintosh. For that kind of money, you can certainly do a lot of upgrading!

BEFORE YOU UPGRADE

Before purchasing any items, decide which upgrade will give you the biggest and most immediate benefit. If your Apple is short on desktop space, start with memory expansion. Add speed if you are frustrated with sluggish word processing or spreadsheet programs. Or, if you are a heavy database user, start by restoring zip to your system with a hard-disk or RAM drive.

If you find you need to add $1,000 to $1,500 worth of speed, memory, and storage to your Apple II, you should seriously consider switching to more powerful technology. But more than likely you'll need only one or two enhancements to get the extra power you need for your business. There are many products on the market designed to give your Apple more memory, speed, and disk storage. There is even a new class of peripherals aimed at increasing compatibility with MS-DOS computers. Let's take a look at some standout performers.

INCREASE THE DESKTOP

The most popular enhancement for the Apple II, especially for *AppleWorks* users, is extra memory. With a memory expansion board and software, the *AppleWorks* desktop can be expanded far beyond the standard 56K. Other programs can also use this extra memory for data or as a RAM drive.

For moderate *AppleWorks* expansion, there is the Apple IIe Memory Expansion Card ($229) from Apple Computer. This card comes with 256K of RAM and can be expanded to 1MB. Its outstanding feature is ease of use. If you plug the card into any slot, ProDOS will recognize the card as a RAM disk, and *AppleWorks* version 2.0 or later will automatically expand the desktop up to 980K.

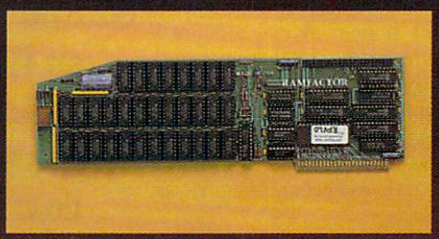
If you don't have any open slots in your

CHARLES H. GAJEWAY, *a member of our Advisory Board, wrote "Upgrading Your Computer, Part I: MS-DOS" in last month's issue.*

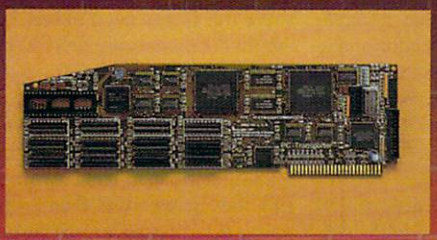
PHOTOGRAPHS BY DAVID LUBARSKY

ANATOMY OF AN UPGRADE

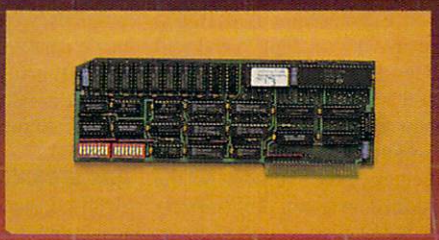
Programs and data can be stored for faster access on a hard-disk drive such as this one from CMS Enhancements.



Memory cards allow you to expand the *AppleWorks* desktop far beyond 56K so that you can work on larger files.



Applied Engineering's PC Transporter board lets you run MS-DOS programs on your Apple IIe.



No more yawning! Accelerator cards speed up your programs so you don't have to wait while spreadsheets recalculate and word processors search and replace.

Apple, the RamWorks III ($249) from Applied Engineering is your best bet. The RamWorks III card plugs into the Apple IIe auxiliary slot, holds up to 1MB, and has an excellent RGB video option. With additional RAM cards, you can bring total memory up to 3MB. The *AppleWorks* expansion software supplied with the RamWorks III will load the entire program into RAM and use the rest for the desktop. With a full complement of memory, you can get an *AppleWorks* desktop of 2,251K!

A third possibility is to add both *AppleWorks* expansion and a large, well-controlled RAM drive to speed up disk-intensive applications. The RamFactor ($299), also from Applied Engineering, is designed for installation in any slot (except 3) and will hold up to 1MB on the main card. In addition, you can add a battery backup option ($179) to maintain the RAM drive contents and up to 4MB of additional memory. RamFactor software enables the memory on the card to be partitioned between *AppleWorks* expansion and a RAM disk. Applied Engineering guarantees both products for five years.

If you have a IIc, your choice is a bit more limited. For ease of use, the Apple IIc Memory Expansion Card ($269 for 256K) from Apple offers the same 256K-to-1MB expansion and ease of use as the IIe expansion card, but requires the model A2S4100 system board.

Heavy *AppleWorks* users will find that Applied Engineering's Z-RAM Ultra 2 ($319) offers a clock, 256K, and the same expansion as its RamWorks III card. The Z-RAM can be installed in any IIc and carries a five-year warranty.

GET INTO THE FAST LANE

The 65C02 processor in the Apple IIe and IIc is one of the most efficient chips around despite its age, but it is also one of the slowest. At 1MHz, complex programs like *WordPerfect*, *VIP Professional*, and *AppleWorks* are sluggish, especially when working with bigger files.

There are two add-on products expressly intended to solve this problem; the $219 TransWarp accelerator card from Applied Engineering and the $179 Zip Chip from Zip Technology. The TransWarp is a slot card that can operate at four speeds between 1MHz and 3.6MHz, while the Zip Chip is a replacement for the 6502 or 65C02 processor chip. The Zip Chip takes longer to install than the TransWarp, but can operate at 18 speeds from .667MHz to 4MHz.

But CPU accelerators are effective only on operations occurring within memory; they cannot speed up data input/output functions such as disk transfers or printing. Database applications tend to be particularly disk-intensive and generally benefit least from CPU acceleration. Software designed to operate completely in RAM—like most spreadsheets—benefits the most.

It will cost more than $1,500 to trade up to either an IBM compatible or Macintosh. For that kind of money you can certainly do a lot of upgrading!

Operationally, both products perform similarly; the Zip Chip is marginally faster with graphics. Your choice is between a well-made card from an established vendor and a new company's innovative product that does not eat a valuable slot. Apple IIc owners are limited to the Zip Chip.

ADD STORAGE

Apple II owners have an array of disk drives to choose from: 3.5-inch floppy, 5.25-inch floppy, or hard-disk drives. The most practical and cost-efficient combination for business use is your current 5.25-inch floppy drive(s) and a hard-disk drive. For about two-and-one-half times the price of adding an 800K floppy drive and controller, you can have a 20MB drive with 25 times the storage and more than 10 times the operating speed, a relative bargain.

Probably the best-known and least expensive Apple II hard drive is the Sider D2 ($595) from First Class Peripherals. Using its own interface and software, the 20MB Sider D2 can handle a variety of operating systems, offers fast and reliable data transfer, and can be daisy-chained with another Sider or a tape-backup unit.

A newer alternative is a SCSI-interface drive. Apple has selected SCSI (Small Computer System Interface) as the standard mass-storage interface for both the Apple IIe and the Macintosh. While a IIe and a Mac cannot share a SCSI drive, a IIe owner who upgrades to a Mac will be able to use that hard-disk drive on the new computer. Excellent 20MB hard-disk drives are available from CMS Enhancements, Inc. ($895), Apple Computer ($1,099), and Rodime, Inc. ($1,195).

MANUFACTURERS MENTIONED

ASKY, Inc., 770 Sycamore Dr., Milpitas, CA 95035, (408) 943-1940; Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014, (408) 252-2775; Applied Engineering, PO Box 5100, Carrollton, TX 75011, (214) 241-6060; CMS Enhancements, Inc., 1372 Valencia Ave., Tustin, CA 92680, (714) 259-9555; First Class Peripherals, 3579 Highway 50 West, Carson City, NV 89701, (800) 982-3232; Jameco Electronics, 1355 Shoreway Rd., Belmont, CA 94002, (415) 592-8097; Kensington Microware, 251 Park Ave. S., New York, NY 10010, (800) 535-4242, (212) 475-5200 in NY; Rodime, Inc., 901 Broken Sound Pkwy., Boca Raton, FL 33487, (407) 994-6200; Zip Technology, 11340 West Olympic Blvd., Suite 350, Los Angeles, CA 90064, (800) 628-3278, (213) 473-7662 in CA.

DEALING WITH MS-DOS

With the IBM PC and compatibles the dominant computers in the business world, file exchange between your Apple II and MS-DOS computers can be a problem. One solution is to add full MS-DOS capabilities to your Apple with the Applied Engineering PC Transporter. For $699, you get a co-processor board—with 768K of memory that runs three times faster than a standard PC and uses a 3.5-inch disk drive—and installation software. If you need to use 5.25-inch disks, Applied Engineering sells a 360K 5.25-inch IBM-format disk drive for $269.

The PC Transporter works well. I ran Lotus *1-2-3*, *OfficeWriter*, *Flight Simulator*, and a number of other MS-DOS programs without a hitch and had no problems transferring files between IBM and Apple disks. The problem with the PC Transporter is that it costs almost as much as an XT clone.

A more cost-effective solution is the Envoy disk subsystem from ASKY, Inc. ($420). Consisting of a controller board and a floppy drive with its own power supply in a double-drive chassis, the Envoy lets the Apple II read and write files on 360K 5.25-inch or 720K 3.5-inch IBM format disks.

PUTTING IT ALL TOGETHER

If you have a IIe, there are certain items you should add to your Apple when you upgrade to help protect it from the stress of the extra peripherals. First, you need a fan; the Kensington System Saver from Kensington Microware ($90) is rugged and handsome, but Jameco Electronics has a less expensive unit for $30.

Next, make sure the IIe Enhancement Kit has been installed. The kit gives your Apple IIe all of the latest system routines that you will need to operate the upgrades properly. The easiest way to check whether the enhancement kit is installed is to watch the screen when you boot. If it displays "Apple //e" while it is booting and accepts commands in lowercase, you have the enhanced model. If the screen shows "Apple][" and will not accept lowercase commands, then you need the kit. List price including installation is $70.

Finally, install a heavy-duty power supply. Applied Engineering has one with a one-year guarantee for $70; Jameco offers a slightly less powerful one for $45.

As you can see, there are many products that will give your Apple IIc or IIe the pep that it is missing. None will give you the power of an IBM PC AT or Macintosh but, for much less money, they will take care of insufficient memory, speed, and disk space. ■

Next month, HOME-OFFICE COMPUTING *will look at ways to upgrade your Mac.*

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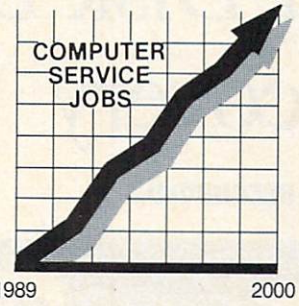

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Tape Systems Speed Up Hard-Disk Backup and Recovery

BY HENRY F. BEECHHOLD

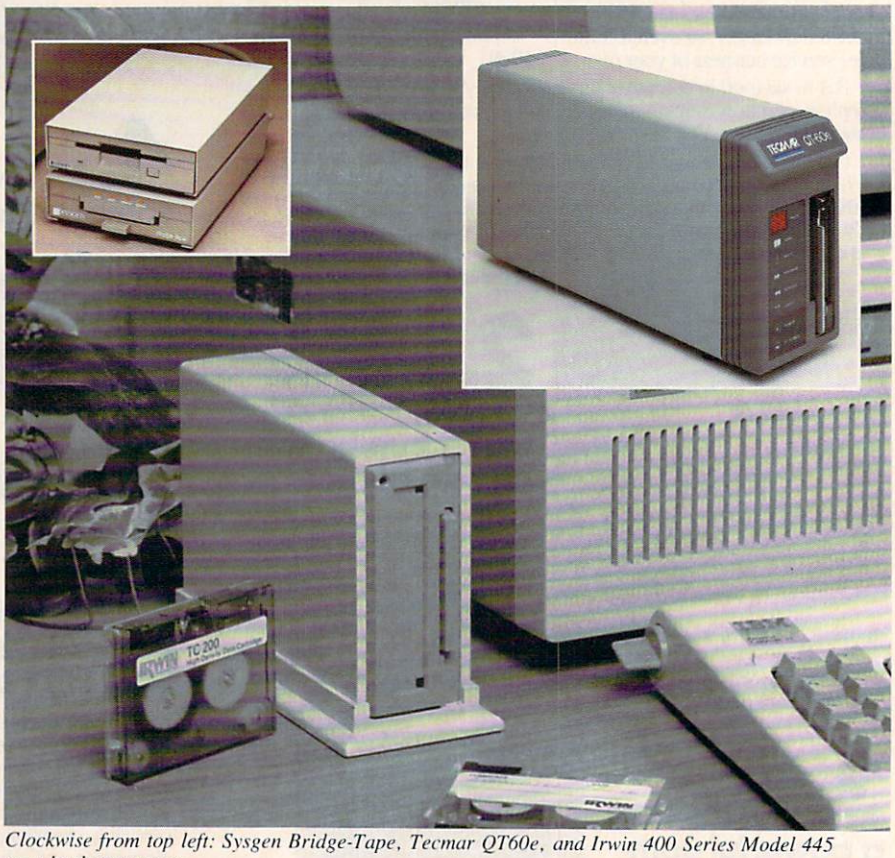
When you were learning to drive, you were told to drive defensively. In other words, be prepared for the worst—for it may come to pass! The same advice applies to hard-disk-based computing. Despite the reliability of good-quality hard-disk drives, your data is always at risk. For example, an electrical failure while trying to access a file can make the file unreadable or even obliterate all the data on your hard disk.

How do you protect yourself against this potential disaster? Make backups—duplicate data (or software) for use in case the original is destroyed or lost.

There are two ways to back up your hard-disk drive. The tedious method is to copy everything on your hard disk to floppies. It's cheap, but to make it work you must be conscientious (and patient!). A more advanced version of this method (but still very slow) is a memory-resident program that periodically dumps the contents of the hard disk to floppies.

The truly professional approach to backup is the use of a high-speed tape system, such as the three reviewed in this Miniguide. Its advantages are convenience, speed, and the hefty storage capacity of a single tape (a 40MB tape is the equivalent of 113 360K floppy disks). The disadvantages may be your initial cost and the fact that the tape-drive interface card requires an expansion slot in your system.

A tape backup system can be either internal or external. Mounting it internally means installing it where you would normally have a floppy-disk drive; external systems are encased in their own housing. External tape drives cost approximately $75–$100 more than internal versions. Some external models come with their own power supply, while others make use of the power supplied through the computer system. The three tape backup systems reviewed here are all external, but only the Tecmar QT-60e comes with its own external power supply.



Clockwise from top left: Sysgen Bridge-Tape, Tecmar QT60e, and Irwin 400 Series Model 445 tape-backup systems.

REVIEWED IN THIS ISSUE:

Tape Backup Systems:
Irwin 400 Series Model 445
Sysgen Bridge-Tape
Tecmar QT-60e
Computer:
Hyundai Super-286C
Display System:
Logitech Graphics Subsystem
Facsimile Machine:
Canon FAX-350
Telephone:
Plantronics LiteSet Cordless
Answering System:
AT&T 1510

SELECTING A TAPE BACKUP SYSTEM

Now that you know what a tape backup system is, what it does, and why you need one, there are a few things you need to look for when shopping.

Storage Capacity. The storage capacity of the tape backup system you choose will depend upon the capacity of your hard-disk drive. If you have a 10MB hard-disk drive, you won't need a tape drive with more than a 20MB capacity. On the other hand, a 60MB tape drive should be sufficient for even a 130MB hard-disk drive, because tapes are as interchangeable as floppy disks—when one fills up with data you just pop in another one.

Software. Software that comes with tape backup units lets you select file backup or image backup. Most software also provides "automatic" operation of the backup unit. This means that no one has to direct the backup process; it is done automatically.

The file method lets you pick and choose which files you want to back up. After all, there's no need to repetitively back up the entire hard disk—only newly edited data files

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The Snap 1+1 portable computer packs a lot of power in a very small package. It weighs only 10 pounds, so it's bound to go wherever you go. From room to room or from city to city. And you won't have to decide which software programs to take — the built-in 20 megabyte hard drive lets you take all your work with you.

Snap 1+1 has something you won't find in other laptops — *built-in expansion!* Its standard expansion slot is perfect for any IBM-compatible half card, such as the Datavue JT Fax card.

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Allow 4 to 6 weeks for delivery.

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(text, spreadsheet, database, etc.). The image method is more like taking a "snapshot" of the entire hard disk.

Backup Speed. The time it takes you to back up your disk will depend on the characteristics of your hard disk (e.g., access time), extent of backup, and where on the hard disk your files (or pieces of files) are located. While all of the drives are fast when compared to the "save-to-floppy" method, some will be faster than others.

But don't buy a tape backup unit just on the basis of raw speed. You have to consider its ease of use (largely determined by the software) and the cost of its storage capacity per megabyte, as well as the manufacturer's reputation and the support it provides.

Power Requirements. It is a good idea to check out the power requirements of the tape backup system you're considering. Depending on the unit you choose, the card and drive may pull power from your computer's power supply. If this is the case, and you're running the power supply at its outer limits now, it will probably need to be upgraded. Check if the unit comes with its own external power supply.

There is no standard for high-speed tape equipment. The tape used in one unit may not even fit into another. Whenever you are planning to add tape backup units to several computers of the same type (say, IBM PC ATs), you should standardize your own operations by installing tape drives of the same type. If you have only a single computer, then pick a tape system that is the best combination of price and features, regardless of the size of the tape.

Despite the reliability of good-quality hard-disk drives, your data is always at risk.

Irwin 400 Series Model 445

Irwin is the oldest and one of the largest manufacturers of tape backup systems. The 400 Series offers good performance at moderate cost.

The software included with the 400 Series is called *EzTape*, which you install on your hard disk via a menu-driven program. *EzTape* can make the system run on its own and can even be set to back up only selected files. Irwin seems to have included every worthwhile option for backup and retrieval.

With the hardware and software installed, the Irwin tape system needs only to be fed with tape from time to time. It can run either manually through the *EzTape* menu or automatically through the *EzStart* subprogram. Backup operations are slightly slower than on the Sysgen system, and more than three times slower than on the Tecmar QT-60e.

The hardware and software manuals are clearly written and adequately illustrated. You should have no trouble either installing the hardware and software or using the system.

Irwin's support staff is available at a toll-free number to help you solve simple problems. Registering your Irwin 400 Series unit will bring you free software updates.

CIRCLE READER SERVICE 101

Sysgen Bridge-Tape

The Sysgen Bridge-Tape consists of an interface card, cabling, and an external drive unit. It draws a considerable amount of power from the system, so you'll probably have to upgrade your power supply.

The software provides for automatic backup, and it also offers many other backup procedures, such as file-by-file. However, it does not provide for image backup.

Changing tapes and telling the Sysgen tape system what to do are the only things needed to keep the system running smoothly. Backup is performed much slower than on the Tecmar. Tape formatting is exceptionally time-consuming, taking more than 51 minutes. Fortunately, you can buy preformatted tapes.

The crudely produced manual needs rewriting and redesign, but it will get you started. The hardware section is adequately illustrated, but the screen snapshots in the software section aren't helpful.

CIRCLE READER SERVICE 102

Tecmar QT-60e

The high quality of the Tecmar system is evident, just by glancing at its casing. You get the feeling that everything about the QT-60e is made to last. However, quality doesn't come cheap—it will probably put a serious dent in your bank account.

Hardware installation amounts to plugging in the interface card, attaching the interface cable, and plugging in the power cord. Unlike the Irwin and the Sysgen systems, the drive unit on the Tecmar stands vertically. It also has a switch on the rear panel that lets you set the unit for 110 or 220 volts AC. It has its own power supply.

QT is a simple, menu-driven program with help screens (supplied on both 5.25-inch and 3.5-inch disks). Once you're familiar with its operation, you can bypass the menu. Four types of backup are provided: complete file-by-file, selected file-by-file, complete mirror-image (for first-time backup), and changed files only. Many worthwhile utilities for backup and retrieval are included.

QT backed up 10MB worth of files in slightly under four minutes—the fastest of the three tape backup systems reviewed here. The software gives you an estimate of the total time and an actual countdown of the backup.

With the three manuals provided, you should have no trouble installing and using the system. There's even a toll-free Quick Service Hotline, as well as a "you-pay" technical support number. ■

CIRCLE READER SERVICE 103

A SIDE-BY-SIDE COMPARISON

Model	Irwin 400 Series Model 445	Sysgen Bridge-Tape	Tecmar QT-60e
Company	Irwin Magnetic Systems, Inc. 2101 Commonwealth Blvd. Ann Arbor, MI 48105 (800) 421-1879	Sysgen, Inc. 556 Gibraltar Dr. Milpitas, CA 95035 (408) 263-4411	Tecmar, Inc. 6225 Cochran Rd. Solon, OH 44139 (216) 349-0600
Rating	★★★	★★	★★★
Suggested Retail Price			
External Tape Unit	$799	$695	$1,495
Interface Card for . . .			
IBM PC bus	$140	$70	$225
MicroChannel bus	$100[1]	$80	$299
Tape (preformatted)	$35	$40	$90[2]
Cost per Megabyte	$23	$18	$29
Our Lab Test: Time to . . .			
Format[3] a Tape (minutes)	40	53	3
Back up 10MB[4] (minutes)	14	11	4
Formatted Capacity	40MB	42MB	60MB
Source of Power	Computer	Computer	Tape unit
Power Consumption (watts)	16	14	40
Size of External Tape Unit (inches)	7.3-by-4-by-2	5.8-by-8-by-1.6	7.2-by-3.8-by-14.5
Card Dimensions (inches)	Half-length (4.5-by-4)	Half-length (4.5-by-4)	Half-length (4.5-by-4)
Warranty (years)	1	1	2

KEY: [1] Installation kit. Due to the power requirements of the unit, Irwin recommends using the Model 745 instead. [2] Price for a package of two unformatted tapes. [3] Necessary when reusing a tape or buying one unformatted. [4] Time required to perform a file-by-file backup and verification of a 640K Epson Equity III+'s 40MB (39 ms) hard-disk drive, which holds 10MB of data (about 500 files) organized in several subdirectories, with the software provided with each tape unit. ○ Poor; ★ Average; ★★ Good; ★★★ Very Good; ★★★★ Excellent.

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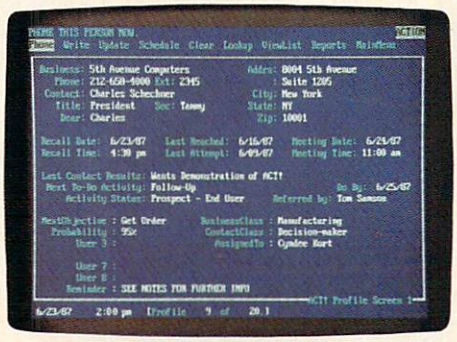

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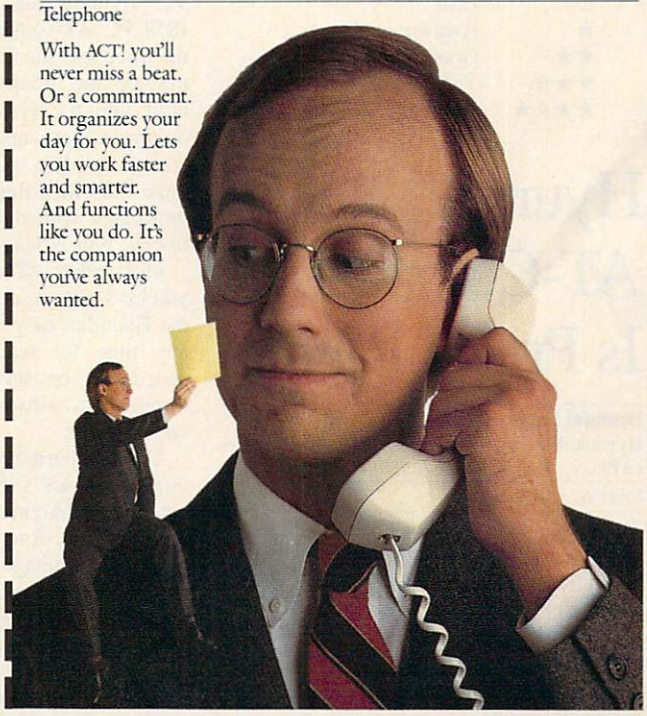

Call toll-free 1-800-338-2449.

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CIRCLE READER SERVICE 26

Products Proffer Performance, Economy, Convenience ... And Disappointment

About Our Reviews and Ratings

Each month, HOME-OFFICE COMPUTING's Hardware Reviews take an in-depth look at new and worthwhile computers, peripherals, fax machines, copiers, phones, and other hardware.

Our reviewers set up the equipment in their own home offices. After heavy use and extensive testing, they rank each item on the basis of suitability for the home office and on overall value, taking into account performance, features, ease of setup, ease of learning and use, documentation, size, expandability/versatility, support, availability, warranty, and value for the money.

Then, the HOME-OFFICE COMPUTING Hardware Testing Lab conducts its own battery of tests (a printer speed test, for example) and verifies manufacturers' specifications. Finally, our technical editors combine the reviewers' rankings, the lab test results, and their own experience and judgment into an overall rating on a scale of zero to four stars:

○	Poor
★	Average
★★	Good
★★★	Very Good
★★★★	Excellent

Hyundai AT-Compatible Is Priced Right

Hyundai Super-286C
Hyundai Electronics America, 4401 Great America Pkwy., Santa Clara, CA 95054; (408) 986-9800

RATING: ★ ★ ★

SUGGESTED RETAIL PRICE: $2,099

MICROPROCESSOR: Intel 80286 (8 & 10 MHz); socket for 80287 (math coprocessor)

MEMORY: 640K, expandable to 1MB without adding an expansion card

DISK DRIVES: 5.25-inch 1.2MB floppy-disk drive; 30MB hard-disk drive with an access speed of 65 milliseconds

PORTS: one parallel and one 25-pin serial

VIDEO ADAPTER: Enhanced EGA card

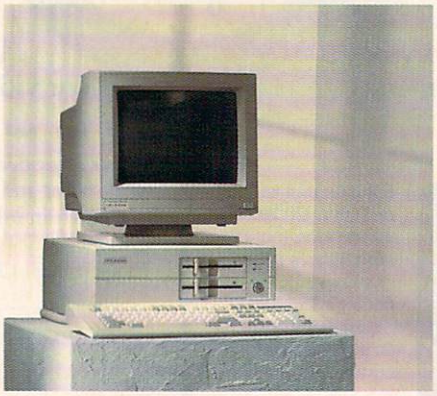
FREE EXPANSION SLOTS: Four AT-type (8/16-bit) and one XT-type (8-bit)

OTHER HARDWARE INCLUDED: Real-time clock/calendar; monochrome monitor

SOFTWARE INCLUDED: MS-DOS 3.2, GW-BASIC, diagnostics, disk caching

DIMENSIONS: 16.5-by-16.5-by-6.2 inches

WARRANTY: 18 months



The Hyundai Super-286C is a dual-speed IBM PC AT-compatible computer with all the usual specifications. A couple worth noting are the floppy-disk-drive controller—built into the system board so it doesn't require a slot—and the large case, roomy enough for five expansion cards and up to three 5.25-inch floppy-disk drives. Our test unit came with one 1.2MB and one 360K floppy, plus a Seagate 30MB hard disk.

Most other AT compatibles require that you load system setup routines from disk; on the Hyundai, they're in ROM, accessible at any time for reconfiguration. The clock speed can be set on the system board, through the software, or by a "hot key" combination.

The keyboard has a mushy touch. I realize that a keyboard's feel is a subjective matter, but I can't imagine anyone being enthralled with this one. And while the amber monitor is sharp, the image is slightly smaller at the top than at the bottom. The Super-286C includes an ATI Technologies EGA Wonder video board, so you can upgrade to a high-resolution monitor without having to spend extra for a new video adapter.

Though written in stilted, frequently ungrammatical English, the User's Guide is clear enough to get you through the initial setup procedures—not a complicated task.

To test general reliability, I left the computer on for its first 24 hours out of the box. There were neither operational glitches nor any sign of overheating. I swapped boards around and fired up the system again, and everything continued to work normally. I even used the computer to test some non-Hyundai products. It served me well.

From the standpoints of performance during testing and quality of workmanship, the Super-286C seems to be a good bet. What the computer lacks in thrills and chills, it makes up for in solidity and good value. An 18-month warranty is designed to help lure you away from other choices. I would feel confident in buying a computer warranted for so long a period by a manufacturer like Hyundai. —HENRY F. BEECHHOLD

CIRCLE READER SERVICE 104

Mouse, Monitor, And Video Card For One Low Price

Logitech Graphics Subsystem
Logitech International SA, 6505 Kaiser Drive, Fremont, CA 94555; (415) 795-8500

RATING: ★ ★ ★

SUGGESTED RETAIL PRICE: $999

HARDWARE REQUIREMENTS: IBM PC/XT/AT or compatible

GRAPHICS CARD TYPE: Enhanced EGA

VIDEO MODES SUPPORTED: CGA, HGC, EGA, 640-by-480 with 16 colors

CARD DIMENSIONS: Half-length (6.3-by-4 inches)

CARD WARRANTY: One year

MONITOR SCREEN SIZE (DIAGONAL): 14 inches

DOT PITCH: 0.31 mm

MAXIMUM RESOLUTION: 800-by-560

MONITOR DIMENSIONS: 14.5-by-11-by-14 inches

→

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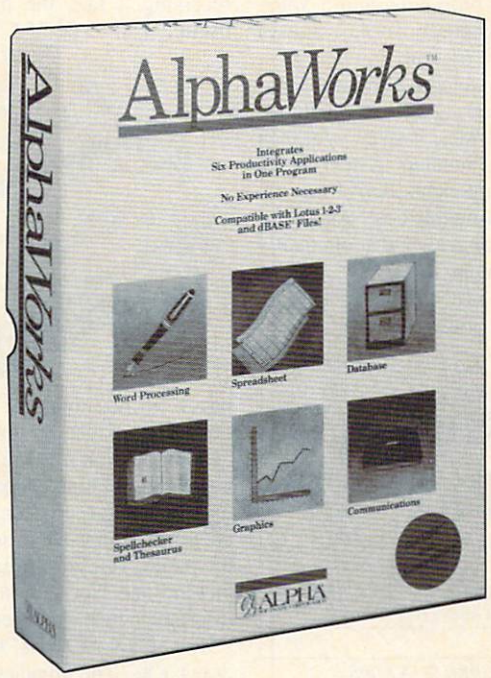

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MONITOR WARRANTY: Two years

MOUSE WARRANTY: Lifetime

SOFTWARE INCLUDED: Mouse driver, LOGIMENU pop-up-menu builder, CLICK, Point & Click, POINT, PaintShow

OPTIONS: EGA card and mouse available separately for $399

The "standard" hardware system now often includes a mouse and an EGA graphics card and monitor. Their popularity increases with the growing use of graphics-oriented programs employing mouse-based, point-and-click control. Logitech has bundled together these three pieces of hardware for those interested in one-stop shopping to upgrade their older systems.

The half-length enhanced EGA card that comes with the Logitech Graphics Subsystem has a built-in connector for the mouse. This arrangement frees your serial port for an external modem or a printer.

The mouse is Logitech's usual sturdy product. It's compatible with products from Logitech's major competitor in the mouse market, Microsoft, so you won't encounter software incompatibility. The buttons require a bit more pressure than other brands, but that shouldn't pose a problem. The first-rate software that accompanies the Logitech mouse lets users tailor mouse sensitivity to their own personal style, but there are also special programs that bring "point-and-click" operation to software that ordinarily doesn't support a mouse—including an excellent utility for Lotus *1-2-3*.

The enhanced EGA video card allows for a resolution of 640-by-480 and 16 colors when using appropriate software drivers. Installing these drivers becomes somewhat tricky when following the hazy documentation—particularly when it comes to Microsoft *Windows*. The documentation was designed for installing *Windows 1.0*, and was useless for installing *Windows 2.0*. As for Logitech's product support, it was surprisingly difficult to get an answer to what I perceived as a common question. After speaking with four different technicians, I was told to use the VGA driver included with *Windows 2.0* instead of the special driver sent with the Logitech system. Much to my surprise, it worked.

The AutoSync monitor enables you to upgrade your system's graphics capabilities to VGA in the future. Its variable scan rate lets it display output produced by anything from MDA through VGA graphics cards. There's a glare-free surface on the screen, and the built-in tilt-and-swivel stand makes it easy to adjust the monitor position to suit your viewing angle.

This monitor and video board combination produces an image that is crisp, clear, and bright. The characters on the screen are reasonably sharp. The monitor has a text switch for monochrome display, but the standard

EGA image is sharp enough for extended word processing sessions. In graphics mode, vertical and horizontal lines are displayed with no distortion, and the colors are attractive and accurate.

As a bonus, the Logitech Graphics Subsystem includes a competent paint program called *PaintShow*. It includes many graphics tools you'd expect in a paint program, plus a screen-capture utility that lets you import graphics from other programs, and a *SlideShow* utility that sequentially displays a set of individual screens for presentation purposes.

Logitech has assembled a tempting package. If having the mouse connector included on the graphics card doesn't sway you, then consider Logitech's bundled system as an attractive set of components delivering top performance at a reasonable cost. And compare the bundled price against that of equally capable products bought separately.

—STEVE MORGENSTERN

CIRCLE READER SERVICE 105

A Workhorse Canon Fax

Canon FAX-350

Canon USA, Inc., One Canon Plaza, Lake Success, NY 11042; (516) 488-6700

RATING: ★ ★ ★

SUGGESTED RETAIL PRICE: $2,995

COMPATIBILITY: Group III, Group II, North American 6-minute FM mode

DOCUMENT WIDTH: 8.5 inches maximum

RECORDING PAPER SIZE: 8.5-inches-by-164 feet

MODEM SPEED: 9600 baud (automatic fallback)

PRINTING METHOD: Thermal transfer

DISPLAY: 20-character-by-2-line LCD

RESOLUTION: Normal, fine, and superfine modes

AUTOMATIC DOCUMENT FEEDER: 30 pages

FEATURES: Automatic redialing, 82-number speed dialing, delayed transmission, 67-location polling, relay broadcasting, confidential transmission, book mode, 16-level gray scale, automatic background control, contrast control, terminal identification, 30-page incoming document holder, automatic paper cutter, 6-page memory reception, talk reservation, local copy function, hang-up alarm, transmission stamp, telephone with pulse/tone switch

DIMENSIONS: 15.6-by-12.6-by-7.1 inches

WARRANTY: 90 days

The Canon FAX-350 has all the features that you would expect for its $3,000 price, including superfine mode, 16-level gray scale, contrast control, broadcasting, polling, automatic dialer, activity reports, and a 30-page automatic document feeder. But the FAX-350 doesn't stop there. Canon has added a few useful extras for high-volume fax users.

The book mode, for example, lets users transmit images directly from books and magazines, eliminating the need to copy the page first. The other features are an automatic paper cutter, memory reception, and plain-paper output. The page cutter cuts incoming faxes at the end of each page. For those times when you run out of paper in the middle of receiving a fax, the memory reception is useful. The FAX-350 will hold up to six

pages of facsimiles in memory until you replace the paper, so nothing gets lost.

While Canon says the FAX-350 is a plain-paper fax machine, it requires a special thermal-transfer paper. Don't be fooled; regular copier or fax paper won't work. To replace the paper, you have to insert a new ink roll, unwind and tape it to a take-up spool, and insert the new paper. Not a simple operation.

The FAX-350 has two other potential drawbacks. The broadcasting feature is really relay broadcasting. Rather than sending the document to more than one location as in regular broadcasting, the FAX-350 sends the phone numbers and the document to a broadcasting fax machine, at a corporation headquarters, for instance, which then broadcasts the document to the final locations. In addition, using the FAX-350's advanced features requires a relatively high degree of technological proficiency.

This machine is highly recommended to high-volume fax users. —STEVE USDIN

CIRCLE READER SERVICE 106

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AIR FORCE

Headset Phone: Best of Three Worlds?

Plantronics LiteSet Cordless
Plantronics, Inc., 345 Encinal St., Santa Cruz, CA 95060; (800) 538-0748, (800) 662-3902 in CA

RATING: ★★

SUGGESTED RETAIL PRICE: $220

TYPE: Cordless headset telephone

FEATURES: Nine earpieces, 1,000-foot transmission, pressure-sensitive dial pad, redial, mute switch, call canceling, volume control, adjustable clothing clip, pulse/tone switch, remote pager

DIMENSIONS: Capsule: 3 inches long, 0.4 inches wide; dialer: 4-by-2.7-by-0.9 inches; base unit: 7.8-by-5.9 inches

WARRANTY: One year

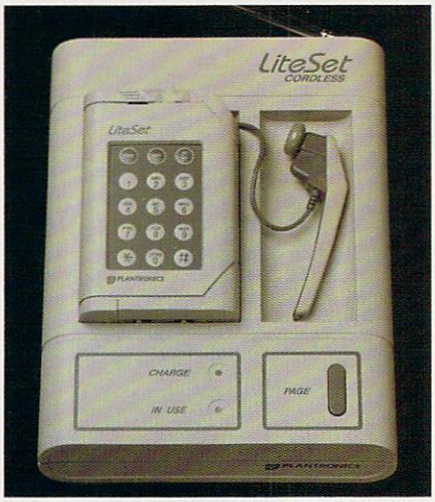
For hands-free communication, most users opt for a speakerphone. The problem with that is a lack of privacy; everyone in the room will hear the conversation and the person on the other end will hear everything going on in your office.

There is another, and perhaps better, solution: a headset telephone. One example is the LiteSet Cordless telephone from Plantronics, Inc. (the company that makes headsets for AT&T operators). The LiteSet gives you the best of three telephone worlds. It has the hands-free operation of a speakerphone, the privacy of a regular telephone, and the mobility of a cordless.

Installation of this three-piece telephone is simple, once you figure out the anatomy of the phone. It amounts to plugging in the base unit, letting the dialer charge for 24 hours, and placing the headset in your ear. Then you can begin calling your clients.

The dialer can be attached to clothing, with the provided clips, or laid on a flat surface. Its large buttons are easy to depress and the on/off switch, similar to the hook on a telephone, allows instant termination of a call. Controls for redial and volume adjustment are also on the dialer. The base unit is only needed to recharge the dialer at the end of the day.

The LiteSet has two potential drawbacks: the headset and the sound quality. The headset can be a little difficult and uncomfortable to use for the uninitiated but, with time, you will get accustomed to having it hanging out of your ear. The sound quality of my LiteSet was inconsistent. In my neighborhood, the static was so overwhelming that a conversation could hardly be held. When I tried the phone in a different part of town, the static was almost unnoticeable. This is not the fault of Plantronics. Cordless telephones work on radio waves, so different frequencies work



better in different areas. Your dealer should match you with a phone tuned properly.

One major drawback of the LiteSet is the manual—14 pages of pure confusion. Fortunately, most of the functions are easy to use and require hardly any help from the manual.

At $220, the LiteSet Cordless is valuable to people who need hands-free, private communication abilities. However, the manual and the hassle of finding a unit tuned to the right frequency could make you shy away from this phone. —CHRISTOPHER GABLE

CIRCLE READER SERVICE 107

A Giant Stumbles: AT&T Ranks Low

AT&T Answering System 1510
AT&T, 295 North Maple Ave., Basking Ridge, NJ 07920; (800) 222-0300

RATING: ★

SUGGESTED RETAIL PRICE: $160

TYPE: Telephone answering system

FEATURES: Beeperless remote, one-touch message playback, toll saver, personal memo, two-way recording, call screening, voice-activated recording, variable message length, LED message indicator, ring selector. Integrated phone includes pulse/tone switch, 9-number speed dialing, mute button, volume control, lighted dial

DIMENSIONS: 9.8-by-9.3-by-4.3 inches

WARRANTY: One year

"Things haven't been the same since the breakup" is a comment often heard when people complain about phone service. Whoever thought that this could also apply to phone equipment from AT&T? We've come to expect the highest quality from AT&T, but the 1510 is no different from dozens of other inexpensive answering machines on the market. It does fulfill the basic requirements—answering the phone, playing and recording messages, and letting you hear messages from either your home or a remote touch-tone phone—but the 1510 does not have the solid look and feel AT&T is famous for, and it has no features that make it stand out.

It just seems to do things backwards. Most answering machines I've used save previously recorded messages unless you erase them or rewind the tape to record new messages over them. Unless you instruct it otherwise, the 1510 automatically rewinds the tape to the beginning and wipes out previous messages. I'm not sure how other people use their answering machines, but I often listen to all my messages at one time, and then go back later on to act on some portion of them—like putting a new phone number into my Rolodex.

Another oddity of the 1510 is the way you play back messages. Normally, pressing the play button lets you hear whatever is recorded—old or new—and, unless you want to stop the playback, no intervention is needed. With the 1510, you must hold down the play button to hear your saved messages. Needless to say, it's a little difficult to type phone numbers into my electronic Rolodex with one hand.

For callers, the 1510 has an incredibly long beep. Here is how the manual deals with this complaint: "The beep lasts from after your announcement until your machine fast-forwards over retained messages to blank space where it can record a new message. It would be a courtesy to keep stored messages to a minimum so that beep (wait) time is minimal." This is common to most answering machines that use one tape for both outgoing and incoming messages; it's unpleasant to clients, so you should avoid this type of machine for your business.

If this review is a little harsh, it's because of my background. At one point in my life I built telephones for Western Electric, when it was part of the Bell System. We were taught that quality was paramount. After all, they were Bell Telephones—not some imitation. It just may be true that "things haven't been the same since the breakup."

—STEPHEN MILLER

CIRCLE READER SERVICE 108

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Our reviews of applications software use shorthand to describe several of the details associated with any package. This is particularly true under "System Requirements"—where the minimum system configuration is noted—so we have provided the following table of computers for you to refer to as needed. The additional hardware, software, or memory listed is required, unless noted as "recommended" or "optional." When more than one computer is listed under "System Requirements," the machine marked with an asterisk (*) is the type on which the software was reviewed. Requirements are *not* listed where obvious (for instance, printers with word processors or modems with communications programs). Operating system requirements, such as MS-DOS or the Macintosh System file, are listed only when they're not the standard, minimum requirement (DOS 2.0 for IBM PC or compatibles, System 3.2 for the Macintosh, or ProDOS for the Apple II). For those computer systems that can use both 5.25- and 3.5-inch disks (IBM PC and PS/2 or the Apple II), we've listed only those disk sizes that are either normally supplied or available at no extra cost from the publisher. Since most productivity software is not copy protected, we have indicated with the letters "CP" only those programs that are copy protected. The version listed is the version reviewed; publishers may release subsequent versions at any time.

Designation	Models
128K Apple	IIe/IIc/IIGS (in IIe/c mode) and compatibles
128Ke Apple	IIe (enhanced ROM)/IIc/IIGS(in IIe/c mode)
Apple IIGS	IIGS only
IBM PC, PS/2	PC/XT/AT, PS/2 and compatibles
128K Macintosh	128K/512Ke/Plus/SE II
512K Macintosh	512K/512Ke/Plus/SE/II
512Ke Macintosh	512Ke/Plus/SE/II
1MB Macintosh	Plus/SE/II

Ratings Key: ○ Poor; ★ Average; ★★ Good; ★★★ Very Good; ★★★★ Excellent

Not only does Wordbench *let you merge an outline into your text, it will also automatically convert outline headings into section headings for the document.*

Wordbench

VERSION REVIEWED: 1.0

SYSTEM REQUIREMENTS: 128K Apple; 256K IBM PC*; two drives recommended; 5.25- and 3.5-inch (Apple, IBM)

PUBLISHER: Addison-Wesley Publishing Company, Consumer Software Division, Route 128, Reading, MA 01867; (617) 944-3700

PRICE: $149 (Apple); $189 (IBM)

OVERALL PERFORMANCE: ★★★★

DOCUMENTATION: ★★★★

ERROR-HANDLING: ★★★★

EASE OF USE: ★★★★

SUPPORT: ★★★★

Wordbench is the kind of software that makes me wonder, "Why didn't someone think of this before?" Perhaps the ultimate writer's toolbox, it's a menu-driven word processor made up of several integrated applications. It might be more correct to refer to it as a writing environment. This program lets you create, outline, edit, merge, format, print, and store *ideas*; it recognizes that good writing is built on the organized presentation of ideas.

Since *Wordbench* basically works the way a writer thinks, it can really streamline the writing process. When I set out to write—whether an article, book, or letter—I usually start by coming up with ideas and taking notes, then organizing the notes into a rough outline. *Wordbench* facilitates this approach by providing applications called The Notetaker and The Outliner. Using The Outliner, you can make a four-level outline, or framework, for your document. The Notetaker lets you quickly enter ideas and notes, then merge them under outline headings.

Once you have an outline or a clear idea of what you are going to write, you can switch to the module called The Writer, a full-featured word processor that lets you enter and edit text and footnotes, format text, and merge documents. It can also spell check, find synonyms, and do word searches. At any time, you can leave The Writer and view your outline or notes, or if you prefer, you can merge your outline into your document, which automatically converts the outline headings into document section headings. I found this a great writing aid, because it can turn rough ideas into well-organized topic sentences in a matter of minutes.

The printing and housekeeping of documents is done with two other *Wordbench* modules. You format documents for printing with The Print Manager, switching from The Writer to The Print Manager at any time (without losing data) to set parameters for printing the main body of text, as well as footnotes, a bibliography, or a table of contents. Most popular printers are supported. For housekeeping, the Folder Manager lets you organize project folders for filing documents on disk.

Of the many additional features of *Wordbench*, two proved especially useful for me. One is a "Desktop Tool" called The Viewer, with which you can view two files simultaneously through an on-screen window and copy text into the main document. This provides a form of cutting and pasting that makes it a breeze to quickly scan files and folders and combine text from many different files into one. The other *Wordbench* feature I like is an "Add-on Application" called Brainstormer, for breaking writer's block and coming up with new ideas.

Wordbench is fast and efficient. The menus are clearly labeled and consistent throughout the program—at no time did I feel lost in Menuland. By using *Wordbench*'s feature of predefining function (shortcut) keys, I could vastly increase the speed of commonly used functions. The documentation—a user's guide, reference manual, and tutorial—carefully explains each feature in a non-technical manner, accompanied by diagrams, examples, and clear descriptions.

The technical support for *Wordbench* was the best I've seen in many moons. When I called the support line with a printer prob-

lem, I was surprised to find a real voice on the line—within two rings. Upon hearing my problem, the support person calmly asked me several questions regarding my computer, printer, and setup. Based on the information I gave her, she helped me correct my problem by suggesting I install a new printer driver. She also gave me her name and suggested I call her back if I run into any more problems. That's my idea of support!

Wordbench is unique software that can benefit writers in all fields. It can help you take a writing project from its inception to the final printing without leaving your computer. Its menus are logically laid out and easy to follow, and its modular nature makes it very powerful and expandable to suit your specific writing needs. As a professional writer, I wouldn't hesitate to recommend *Wordbench* to other writers.

—JOEY LATIMER

#Cruncher

VERSION REVIEWED: 1.0

SYSTEM REQUIREMENTS: 384K IBM PC or PS/2; two drives (hard-disk drive recommended); 5.25- and 3.5-inch

PUBLISHER: Simon & Schuster Software, 1 Gulf + Western Plaza, New York, NY 10023; (212) 373-8500; (201) 592-2900

PRICE: $100

OVERALL PERFORMANCE: ★ ★ ★

DOCUMENTATION: ★

ERROR-HANDLING: ★ ★

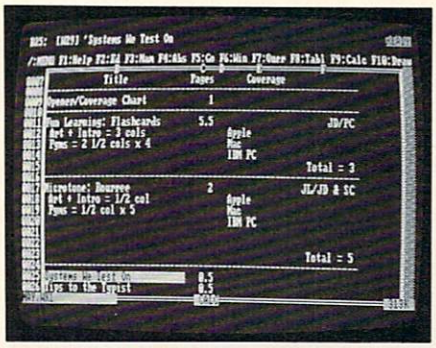
EASE OF USE: ★ ★

SUPPORT: ○

Inspired by the success of Lotus *1-2-3*, several spreadsheet publishers have come up with *1-2-3* work-alikes that undercut their progenitor's hefty price tag. *#Cruncher* (say "number cruncher") falls squarely into this camp, offering nearly all the features of *1-2-3* Release 2.0, plus several extra capabilities, for a bargain-basement $100.

#Cruncher uses the same main menu and submenus as *1-2-3*, with some minor alterations that probably reflect a fear of Lotus's copyright lawyers. All the menu features work just as they do in the parent program; function and editing keys perform almost identically, too. Anyone familiar with *1-2-3* will feel right at home. *#Cruncher* even uses the same function names in formulas and the same file format as *1-2-3* Release 2.0, so you can move worksheets from one program to the other without conversion.

But when it comes to large spreadsheets, *#Cruncher* comes up short. You're limited to a maximum of 260 columns and 2,048 rows, while its premium-priced competitors (including other work-alikes such as *VP-Planner Plus*) support over 8,000 rows. Still, for many purposes—especially if you're not



As a Lotus 1-2-3 *work-alike,* #Cruncher *offers nearly all the features of* 1-2-3 *(plus several more) for a mere $100.*

creating databases in your worksheets—this is plenty of room. *#Cruncher* cannot make use of expanded or extended memory (memory over 640K), which is necessary for loading the largest files. It also runs more slowly than *1-2-3*, taking about twice as long to load and save files and recalculating slowly, too.

However, its direct emulation of *1-2-3* gives *#Cruncher* tremendous flexibility. A particularly helpful feature not found in *1-2-3* lets you add notes to any area of the worksheet. When the cursor moves onto that particular area, the note pops up at the bottom of the screen—useful for flagging any item that needs updating or special treatment.

A host of mathematical, statistical, and financial functions lets you create complex formulas for automatically filling cells with values calculated from data elsewhere in the worksheet. You can automatically create tables or fill a row or column with a sequence of numbers. *#Cruncher* can also take some of the tedium out of creating headings by automatically filling a row or column with the days of the week or months of the year.

For automating complex, often-repeated tasks, *#Cruncher* offers *1-2-3*'s powerful macro language, which lets you execute a series of keystrokes or commands by pressing a single key; you can even create menus of options that the macro pops up when invoked. Another option that Lotus doesn't offer automatically records all your keystrokes as you build a worksheet.

Although the program itself reflects careful attention to detail, care was not carried over into the documentation. It may be thorough, but it contains a number of misleading typos and inaccuracies and is not always as clear as it should be. The index comes as a separate booklet, requiring that you flip back and forth between it and the manual—a real headache. One bonus, however, is that the excellent book, *Elements of Spreadsheet Style*, is bundled with the program. Technical support also leaves something to be desired. First off, you pay for the phone call. The support people I contacted knew very little about the program, and one had to call back the next day— with mostly inadequate information.

For anyone who wants the industry standard in spreadsheets but doesn't want to pay a premium price for it, *#Cruncher* would be a good choice. As long as you don't need to work with gigantic spreadsheets and your printing needs are fairly straightforward, this package should serve you well.

—ROBERT KENDALL

MyBase

VERSION REVIEWED: 1.0

SYSTEM REQUIREMENTS: 384K IBM PC, PS/2; two drives; 5.25- and 3.5-inch

PUBLISHER: Useful Software, 22704 Ventura Blvd., #145, Woodland Hills, CA 91364; (818) 880-9128; (800) 521-7225

PRICE: $90

OVERALL PERFORMANCE: ★ ★ ★

DOCUMENTATION: ○

ERROR-HANDLING: ★ ★

EASE OF USE: ★ ★

SUPPORT: ★ ★ ★

Consider how handy it would be to have fanfold wallet-size strips with all your information pertinent to a business trip, including itinerary, business contacts, phone numbers, and all the reminders you need. *MyBase* is designed explicitly for this. Included in the package are two reusable, check-sized leatherette folders in which you can conveniently carry your *MyBase*-generated appointment calendar or other data; you also get a starter pack of tractor-feed double-page sheets, with preprinted borders on front and back.

Any full-service database management software can do what *MyBase* does, but it will take some work and you probably won't want to be bothered. *MyBase*'s trick is specialization: it's designed for one small set of tasks. Consider it an adjunct to *Paradox* or *dBase* or whatever package you're using. Unless you need a database manager only for making address directories, appointment calendars, and mailing labels, *MyBase* cannot replace a general-purpose database.

MyBase works with over 400 printers, including a number of laser printers. In the event your printer is not on the list, you can customize *MyBase* through the prompts in the installation program, but you'll need the special control codes that are listed in your printer's manual. Whichever printer you choose, the program puts you through a detailed test routine to make certain the program, printer, and paper are all precisely harmonized.

The key term in *MyBase* is "Guide," which refers to a set of records (a database) as well as the printout. Because the program is specialized, you don't have to design Guide forms from scratch—all of the basic formats are provided. →

Since *MyBase* is still a database, it can sort and cross reference records. So if you have created a Guide to the books in your library, you can alphabetically sort the listing by main or alternate headings. Similarly, you can cross reference your Guide. A third control over a database is the selection category, the aim of which is to produce a separate file containing only those items that match the category—perhaps author or publisher.

MyBase can import data from and export data to several programs (such as *SideKick*, *BlackBook*, and *Avery List and Mail*), including any program that produces or understands SDF or ASCII-delimited formats (*dBase III Plus*, for instance). Print options include Rolodex format and the following organizer formats: Traveling SideKick, all Daytimer styles, Filofax, Dayrunner, billfold, and 8.5-by-11-inch three-ring binder sheets.

If you need to organize your address book, appointment calendar, and mailing labels, consider MyBase, *a dedicated database with a variety of printout formats.*

For example, each *MyBase* preset Phonebook record can handle three names, two addresses, five phone numbers (with extensions), and notes 156 characters long (with an additional 500 characters as back-of-book notes). The numbers can be exported to phone-dialer programs.

The 80-page manual is minimal, and the on-line help system is primitive. Likewise many prompt messages—some fairly long—that accompany some operations are not well written and will probably leave you scratching your head until you've worked with the program long enough.

MyBase is an inexpensive supplement to your big database program. It provides an especially valuable service to those who rely on such memory-joggers as appointment lists or itinerary information. Since the program is specialized for card-file recordkeeping, it does what it's designed to do with relatively little fuss. Still, it will take a newcomer to databases an afternoon's fiddling to fully grasp the program, since the manual often doesn't explain in clear detail those points that need explaining. Veteran database users

SOFTWARE QUICK TAKES

TITLE/PUBLISHER PRICE/VERSION	SUMMARY	SYSTEM REQUIREMENTS	RATINGS O	D	EH	EU	S
DS Manager Design Software 1275 W. Roosevelt Rd. West Chicago, IL 60185 (312) 231-4540 $50 v1.0	Set up your own customized menus, including passwords for security, with this "DOS shell" utility. Does all it claims to do—such as running the programs on your hard-disk drive; copying, deleting, or renaming files; and logging the time spent on the system (useful for IRS reporting)—but does it oh, so slowly! *—Henry F. Beechhold*	256K IBM PC, PS/2. Hard-disk drive recommended. DOS 2.1 or higher.	★ ★	★ ★	★ ★ ★	★ ★	★ ★ ★
GEOS Berkeley Softworks 2150 Shattuck Ave. Berkeley, CA 94704 (415) 644-0883 $130 v1.0	An integrated "environment" made of icons and pull-down menus with four applications: word processor, spelling checker, mail-merge, and paint program. Despite its Mac-like graphic interface, quirks make for more frustration than ease. For example, the manual refers, PC-like, to drives A: and B:, instead of to the Apple-like drives 1 and 2. *—Gwen Solomon*	128K Apple (256K recommended). Mouse or joystick (mouse recommended). 5.25-inch or 3.5-inch (two drives recommended). CP. Separate C 64 version reviewed in January 1987 issue.	★	★ ★	★ ★	★	★ ★ ★
Paintworks Gold Mediagenic/Activision 3885 Bohannon Dr. Menlo Park, CA 94025 (415) 329-0800 $100 v1.0	Paint program that takes full advantage of the Apple IIGS's advanced graphics capabilities by adding more than 80 features to the earlier *Paintworks Plus*. Perhaps the most intriguing of the new features is animation, which it can do by either cycling through the colors to simulate movement or by true frame-by-frame sequencing. If you have the original *Plus* version, contact the publisher about a $40 upgrade—if you have the memory to run it. *—Alexandria Searls*	1.25MB Apple IIGS. Color monitor. 3.5-inch.	★ ★ ★ ★	★ ★ ★	★ ★ ★	★ ★	★ ★ ★
Reflection IMSI 1299 Fourth St. San Rafael, CA 94901 (415) 454-7101 $89 v1.1b	For those with several graphics programs, this utility can help you convert images between incompatible formats. Supported graphic formats include *PC Paintbrush, GEM, Windows Paint*, and eight more, but not all formats convert easily. Knowledge of the complexities of DOS graphics files and the different graphics cards (CGA, EGA, VGA, Hercules) is needed for success. *—Brooks Hunt*	256K IBM PC or PS/2. Two drives or hard-disk drive (optional). CGA, EGA, VGA, or Hercules. 5.25-inch or 3.5-inch.	★ ★	★ ★	★ ★	★	★ ★ ★
Stepping Out II Berkeley System Design, Inc. 1700 Shattuck Ave. Berkeley, CA 94709 (415) 540-5536 $95 v2.0	Gives you some of the advantages of a large-screen monitor on the Mac's normal 9-inch screen by displaying sections of a program's screen one at a time and letting you easily scroll around all the sections. Also magnifies or reduces portions of a screen. You love it or hate it; in either case, it takes a while to get used to. *—Ron Mansfield*	512Ke Macintosh (1MB recommended). System 4.1 or higher.	★ ★	★ ★	★ ★	★ ★	★ ★

Ratings Key: O Overall Performance; **D** Documentation; **EH** Error-Handling; **EU** Ease of Use; **S** Support; O Poor; ★ Average; ★★ Good; ★★★ Very Good; ★★★★ Excellent

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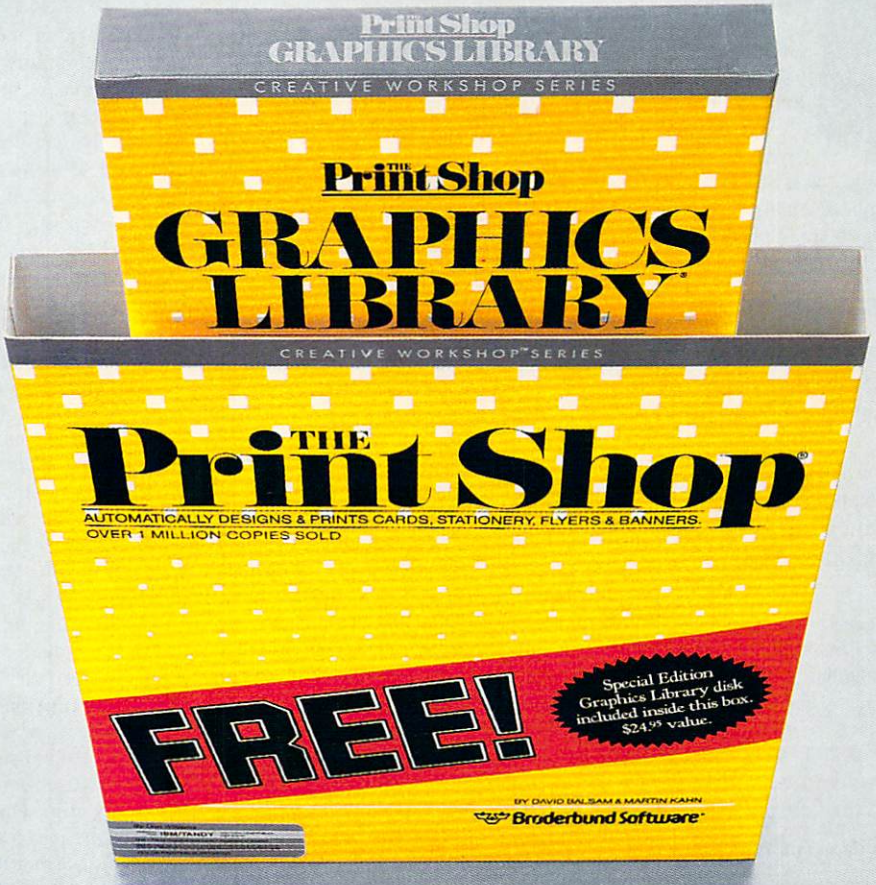

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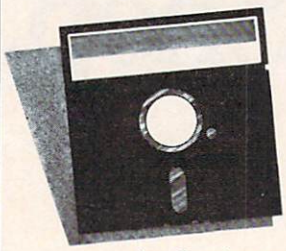
A Wealth of Knowledge.



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should have little difficulty in doing something useful with *MyBase* right away.

There are several low-cost indexing programs around that can give you sorted lists drawn from any ordinary text file, but *MyBase*'s real strength derives from its sophisticated printing capabilities.

—HENRY F. BEECHHOLD

MacProject II

VERSION REVIEWED: 1.0

SYSTEM REQUIREMENTS: 512Ke Macintosh; two drives (800K each); System 4.1 or higher

PUBLISHER: Claris Corp., 440 Clyde Ave., Mountain View, CA 94043; (415) 960-1500

PRICE: $495

OVERALL PERFORMANCE: ★ ★ ★

DOCUMENTATION: ★ ★ ★

ERROR-HANDLING: ★ ★ ★ ★

EASE OF USE: ★ ★ ★

SUPPORT: ★ ★ ★

As a child, I watched a cartoon series in which one of the characters always used to say "I have a plan!" This character was one of the bad guys and, conveniently, the plan always failed. For various reasons, some part of the plan never seemed to happen on time or in the proper sequence. Fortunately, he wasn't using *MacProject II*, a program that helps you plan and monitor the progress of any large-scale project. With it, this bad guy would probably have been successful, since he would have been able to foresee and plan for all the problems that occurred—and that would have been the end of the series.

MacProject II exploits the Mac's graphics interface to help you organize projects. You enter the tasks that make up a project by creating boxes and entering a description of each task into a box. This same technique also lets you create *milestones* (the completion of a major task within a larger project) and links to *subprojects* (other activities that are a portion of a larger project).

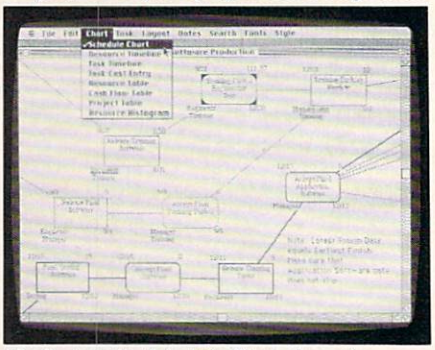
When you select a task by clicking on it, you can enter other information relevant to the task—such as a subtitle or description—the expected duration of the task, the *resources* needed to complete the task (the required materials as well as the individuals or group responsible for doing the work), various start and finish dates (earliest, latest, and actual), and cost information. As you enter information about the duration of each task, the program calculates and displays the *critical path*. This is important because a delay in completing any task on the critical path will mean a delay in the completion of the entire project. All of this is accomplished with the Project Schedule chart.

MacProject II also has six other charts. The Task Timeline chart is a bar graph that shows each task on a time axis. You can program it to show either the planned task durations, the actual task durations, or both. This helps you monitor the project's real progress against its anticipated progress. The Project Table is a very wide chart that shows all of the information you enter into the program. Fortunately, you can adjust the display to show only the information you're interested in viewing or printing. The Resource Histogram shows how much a particular resource is being utilized at any time during the project; it can help determine if a resource is over-committed and displays the effects of adjustments you make to eliminate the over-commitment. The other charts include a Resource Table, a Resource Timeline, a Task Cost Entry chart, and a Cash Flow Table.

MacProject II has many useful and unusual features, such as its ability to track income as well as costs for each task. You can also set a lag time between tasks. To do this you specify the delay between the start of the subsequent task and the start or finish of the previous one. Perhaps *MacProject II*'s most productive feature is the ease with which it can share data with other Macintosh programs. For instance, if you need a better schedule chart, you can copy all or portions of *MacProject II*'s chart and paste it into *MacDraw*. There you can shrink or expand the display, add narrative detail, create a legend, and so on. You can also easily paste project information into a word processor or a spreadsheet for reports or further analysis. This easy exchange of data with other programs is where *MacProject II* outshines MS-DOS project managers.

The documentation is complete and well organized, starting with a tutorial of the program's functions and continuing with a reference section that explains the features in greater detail and suggests how to best take advantage of them.

The program is a significant addition to project-management software for the Macintosh, but it has room for improvement. The method of entering tasks forces you to use subprojects if your project has a large num-



MacProject II*'s Schedule Chart shows the relationships among tasks, duration of the tasks, and the resources required to complete them.*

ber of tasks. This is actually good for reporting progress and summarizing the project on a high level. Unfortunately, I could not copy the resource list from the master project and paste it into the subprojects. If you have several resources, this wastes time, introduces the possibility of error, and creates difficulties when trying to plan for good use of resources. Another problem was the program's inability to pass dates down from a master schedule to a subproject. Although the subproject will update the main project, if you make a change in the early part of the master schedule, you will need to manually adjust the dates of each subproject. Given *MacProject II*'s format, which almost forces you to break large projects into smaller subprojects, it should be easy to pass date and resource information in both directions.

If you use a Macintosh to manage or plan projects in your work, you should look at *MacProject II*. It makes planning and reporting projects a breeze. Best of all, you can take advantage of the Mac's graphics tools to get your project plan on paper in the best format for presentation to your client or boss. —BROOKS H. HUNT

Symphony

VERSION REVIEWED: 2.0

SYSTEM REQUIREMENTS: 384K IBM PC or PS/2 (512K required for spelling checker or add-ins); two drives (hard-disk drive recommended); 5.25- and 3.5-inch

PUBLISHER: Lotus Development Corp., 55 Cambridge Parkway, Cambridge, MA 02142; (617) 577-8500

PRICE: $695

OVERALL PERFORMANCE: ★★

DOCUMENTATION: ★★★

ERROR-HANDLING: ★★

EASE OF USE: ★

SUPPORT: ★★★

Symphony is an elephant-size example of that type of software called "integrated." And with each new release, the elephant grows. It's hard to imagine what we'll find in future versions, although I suspect that if there are new *Symphonys*, they will bear little resemblance to the present one. The ideal integrated software provides an environment for productivity analogous to an ore-to-finished-product manufacturing facility. *Symphony* comes close, but there's a price to pay beyond the dollar cost of the software. Large packages like *Symphony* are not just memory hogs, they are so packed with features that it takes a new user considerable time to master the system. True, the basic operations can be learned quickly, but you don't buy a program like *Symphony* just to do simple spreadsheets and casual word processing, activities easily handled by plenty of $49 programs. Further-

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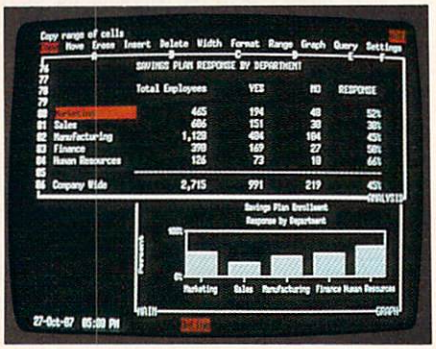
more, Lotus has added so many enhancements to its flagship program, *1-2-3*, that one might question the need for *Symphony* at all.

The heart of *Symphony* is a version of the Lotus *1-2-3* electronic spreadsheet, which is far from state of the art but certainly well tested and capable. In fact, all of the environments (word processor, database, and so on) are really specialized manifestations of the spreadsheet. Even when you're editing text, the spreadsheet CALC indicator lights up during activities like reformatting. Most operations are controlled through preset function keys and *1-2-3*-type menu panels displayed across the top of the screen.

During the first weeks of your adventures with *Symphony*, expect to flounder. Just hang in, however, and the program's resources will become apparent. Indeed, if you've never used software of this complexity, not only will you marvel at what you can do, but you're likely to end up changing the shape of your own business computing practices. Undoubtedly, you'll also discover that once you enter *Symphony* at the start of your computing sessions, you'll not leave it. Most of the rest of your software will probably become redundant. Still, if you need some function you just can't squeeze out of *Symphony*, the program's DOS add-in lets you hop out, run another program, and hop back in without disturbing pending *Symphony* operations.

Users of earlier versions of *Symphony* cannot simply upgrade; for purposes of installation, version 2.0 is new and—even though the changes really don't constitute a complete major upgrade—the new version entirely replaces the old. Owners of versions 1.0 or 1.01 can upgrade for $150; if you have versions 1.1 or 1.2, an upgrade costs $95. Anybody who knows an older version will have no trouble in adapting to version 2.0.

Newcomers to the *1-2-3*/*Symphony* world will, of course, enter unknown territory. Although the manuals are so large that one cannot help being intimidated, the writers have made a conscientious—and, for the most part, successful—effort to put you into the picture without causing you too much stress. The elaborate on-screen tutorial and the on-line, context-sensitive help screens combine with the manuals to provide a comprehensive learning system.



The heart of Lotus's integrated Symphony *package is a version of the* 1-2-3 *spreadsheet. Other main applications include a word processor and database.*

Let's look at a few of the new features. "Accelerator Keys" are hot keys, that is, keystroke equivalents of point-and-shoot menu choices. Thus, to access the text-copy feature, you need only press CTRL-C. There's nothing about this that most word processors don't already offer. But it's new for *Symphony*, which reminds us that the *Symphony* word processor started out as a crude effort, merely a quick-and-dirty adjunct to the spreadsheet. The improvements in search and replace amount to the addition of various wildcard designators to the search pattern, letting you match tabs, page breaks, return characters, and so on.

People new to *Symphony* should spend their first few hours working through the interactive on-screen tutorials, a set of related programs designed to introduce you to the principal features of the software. A bit of advice: go slowly and don't explore more than a few sections at a sitting. Otherwise, you'll end by merely staring at the screen and automatically pushing keys—rote, unpro-

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ductive behavior.

Once you have a sense of what *Symphony* can do for you, put away the tutorials and start doing something practical, such as writing a letter or setting up a small database. Each menu item comes with a brief prompt, but screen help is always available at the press of a key (F1). You should run through all the menus and submenus a few times just to get a feel for what's on hand. ESCape will get you back out to the working environment.

In principle, *Symphony* is not much different from many other integrated programs. You can transfer data among environments (for example, spreadsheet to database), graph numerical values into a number of graph types (bar, XY, or pie,for example), and receive and send data through your modem.

The size of a document, database, or worksheet is dependent on the amount of open memory in your system. *Symphony* can make use of any "mega-memory" compatible with the Lotus/Intel/Microsoft Expanded Memory Specification (EMS), such as Intel's Above Board memory cards. Spreadsheet range names, setting sheets, and text are automatically loaded into expanded memory. In the absence of extra memory, files will be smaller and many operations will run more slowly. To do its best, *Symphony* needs a computer running at 10MHz or faster with at least 2MB of expanded memory and a hard disk. It will work in an old, slow, 384K floppy-disk machine, but not well.

It's possible to do a great deal of work in *Symphony* without resorting to the built-in programming facilities, which include the *Symphony* Command Language and @Functions. But these capabilities are what give this type of software its industrial strength. The Command Language and its associated @Functions constitute a control system that will allow you to perform virtually any operation or set of operations pertinent to business-related computing. An example of an @Function is @Rate, which returns the periodic interest rate for an investment.

The add-in functions greatly expand the usefulness of *Symphony*. With Outliner, for instance, you can create document outlines to a depth of 32 levels. As far as text entry is concerned, the Outliner environment behaves exactly like the DOC (word processing) environment. The macro generator lets you create keyboard macros, and the Macro Library Manager add-in enables you to store and use your macros as you wish, even creating multiple-spreadsheet applications.

Businesses with an ongoing need for a just-plain-folks word processor (with spelling checker and outliner), a fairly sophisticated flat-file database, a Lotus *1-2-3* spreadsheet, a business-graph generator and report writer, and a telecommunications facility may find *Symphony* a worthwhile investment. But should you need a really serious word processor (perhaps for desktop publishing applications), then save your money; *Symphony* is expensive and lacks a full-featured word processor. It's also underpowered for applications in which a first-class relational database (such as *dBase III Plus*) is called for. Even its centerpiece, the spreadsheet, has an old-fashioned air about it in this day of multidimensional spreadsheets (like *Excel* or *Lucid 3-D*) and plain English formula development (as in *Javelin*).

And even if you're impressed with all of *Symphony*'s features, you'd do well to examine the wide selection of low-cost integrated software on the market. You may find just what you're looking for, or you may decide that *Symphony*'s extras and fine-tunings are worth the premium price.

Symphony does what it claims to do. And while it's packed with hidden power, you'll have to work to make the most of it. On the basis of cost/benefits, only you can be the judge. On the basis of overall functionality in comparison with many other similar products, I'd place *Symphony* at the lower end of the scale. Were I setting up a small business, I seriously doubt that I'd pick *Symphony* for my business software.

—HENRY F. BEECHHOLD

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BEST-SELLING SOFTWARE

These best seller lists, prepared exclusively for HOME-OFFICE COMPUTING *by Egghead Discount Software, are based on actual sales at 151 Egghead stores around the United States for the month of September.*

IBM

BUSINESS

1. Lotus 1-2-3 v2.01
   Lotus Development Corp.
2. WordPerfect v5.0 & v4.2
   WordPerfect Corp.
3. Norton Utilities Advanced Edition
   Peter Norton Computing, Inc.
4. Windows/286 v2.10
   Microsoft Corp.
5. Word v4.0
   Microsoft Corp.
6. dBase III Plus v1.1
   Ashton-Tate Corp.
7. Quattro
   Borland International, Inc.
8. First Publisher v2.0
   Software Publishing Corp.
9. Turbo Pascal v4.0
   Borland International, Inc.
10. Sideways v3.2
    Funk Software

HOME/SMALL BUSINESS

1. Quicken v2.1
   Intuit
2. Calendar Creator Plus
   Channelmark Corp.
3. The Print Shop
   Broderbund Software Inc.
4. Managing Your Money v4.0
   MECA
5. WillMaker v3.0
   Nolo Press
6. Micro Cookbook
   Pinpoint Publishing
7. Print Magic
   Epyx, Inc.
8. First Publisher Art Gallery
   Software Publishing Corp.
9. News Master II
   Unison World, Inc.
10. Certificate Maker
    Springboard Software, Inc.

EDUCATION

1. Learning DOS v1.01
   Microsoft Corp.
2. Math Blaster Plus
   Davidson & Associates
3. Reader Rabbit
   The Learning Company
4. Where in the World...
   Broderbund Software
5. Typing Tutor IV
   Simon & Schuster, Inc.
6. Where in the USA...
   Broderbund Software
7. Think Quick
   The Learning Company
8. Barron's Study Program for the SAT
   Barron's Educational Series
9. Reading and Me
   Davidson & Associates
10. Alge-Blaster!
    Davidson & Associates

ENTERTAINMENT

1. Flight Simulator v3.0
   Microsoft Corp.
2. T.V. Game Shows
   ShareData
3. Ultima V: Warriors of Destiny
   Origin Systems/Broderbund
4. Test Drive
   Accolade
5. Hardball
   Accolade
6. Chuck Yeager's AFT
   Electronic Arts
7. Scrabble
   Leisure Genius/EA
8. Paperboy
   Mindscape
9. Earl Weaver Baseball
   Electronic Arts
10. California Games
    Epyx, Inc.

IBM

MACINTOSH

BUSINESS

1. Excel v1.5
   Microsoft Corp.
2. Word v3.01-v3.02
   Microsoft Corp.
3. MacDraw II
   Claris Corp.
4. Tops v2.0
   Tops, Inc.
5. S.U.M.
   Symantec Corp.
6. PowerPoint v2.0
   Microsoft Corp.
7. PageMaker v2.0
   Aldus Corp
8. MacWrite v5.0
   Claris Corp.
9. File Maker II
   Claris Corp.
10. Cricket Graph v1.2
    Cricket Software

HOME/SMALL BUSINESS

1. Quicken
   Intuit
2. The Print Shop
   Broderbund Software
3. Super Paint v1.1
   Silicon Beach Software
4. Poster Maker Plus
   Broderbund Software
5. WetPaint/Vol 1 & 2
   Dubl-Click Software
6. World Class Fonts!/ Vol 1 & 2
   Dubl-Click Software
7. Managing Your Money
   MECA
8. Images v1.0
   3G Graphics
9. MacMoney v3.0
   Survivor Software Ltd.
10. Certificate Maker
    Springboard

EDUCATION

1. Where in the World...
   Broderbund
2. Mavis Beacon Teaches Typing
   The Software Toolworks/EA
3. HyperTutor
   Telegraphics
4. Reader Rabbit
   The Learning Company
5. Typing Tutor IV
   Simon & Schuster
6. Type!
   Broderbund Software
7. Typing Instructor Encore
   Individual Software, Inc.
8. Math Blaster!
   Davidson & Associates
9. Perfect Score w/Perfect College
   Mindscape Inc.
10. MacTeach: The Basics
    Personal Training Systems

ENTERTAINMENT

1. Shufflepuck Café
   Broderbund Software
2. The Toy Shop
   Broderbund Software
3. Chuck Yeager's AFT
   Electronic Arts
4. Beyond Dark Castle
   Silicon Beach Software
5. MacGolf
   Practical Computer Application Inc.
6. Shadowgate
   Mindscape, Inc.
7. Sargon 4
   Spinnaker Software Corp.
8. Leisure Suit Larry In the Land of the Lounge Lizards
   Sierra On-Line
9. Hitchhiker's Guide to the Galaxy
   Infocom
10. Dark Castle
    Silicon Beach Software

MACINTOSH

APPLE

BUSINESS

1. AppleWorks v2.0
   Claris Corp.
2. WordPerfect v1.1 & v2.0
   WordPerfect Corp.
3. Publish-It!
   Timeworks
4. Timeout: Quickspell
   Beagle Brothers
5. List & Mail
   Avery
6. PFS: Write
   Software Publishing Corp.
7. Timeout: Super Fonts
   Beagle Brothers
8. Sideways v2.0
   Funk Software
9. SuperPrint
   Scholastic
10. Webster's New World Spelling Checker
    Simon & Schuster

HOME/SMALL BUSINESS

1. The Print Shop
   Broderbund Software
2. MultiScribe v3.0
   StyleWare
3. Bank Street Writer Plus
   Broderbund Software
4. Quicken
   Intuit
5. The Print Shop Graphics Library Party Edition
   Broderbund Software
6. The Print Shop Companion
   Broderbund Software
7. The Print Shop Graphics Library Sampler Edition
   Broderbund Software
8. Certificate Maker
   Springboard
9. The Newsroom
   Springboard
10. Managing Your Money v3.0
    MECA

EDUCATION

1. Mavis Beacon Teaches Typing
   Software Toolworks/EA
2. Where in the World...
   Broderbund Software
3. Where in the USA...
   Broderbund Software
4. Math Blaster Plus
   Davidson & Associates
5. Think Quick
   The Learning Company
6. Where in Europe...
   Broderbund Software
7. Letters for You
   Polarware Software
8. Reader Rabbit
   The Learning Company
9. Mixed-Up Mother Goose
   Sierra On-Line
10. Magic Spells
    The Learning Company

ENTERTAINMENT

1. Wings of Fury
   Broderbund Software
2. Hardball
   Accolade
3. The Toy Shop
   Broderbund Software
4. California Games
   Epyx
5. Test Drive
   Accolade
6. Tetris
   Spectrum HoloByte
7. Paperboy
   Mindscape
8. Chuck Yeager's AFT
   Electronic Arts
9. Choplifter and David's Midnight Magic
   Broderbund Software
10. Aliens
    Mediagenic

APPLE

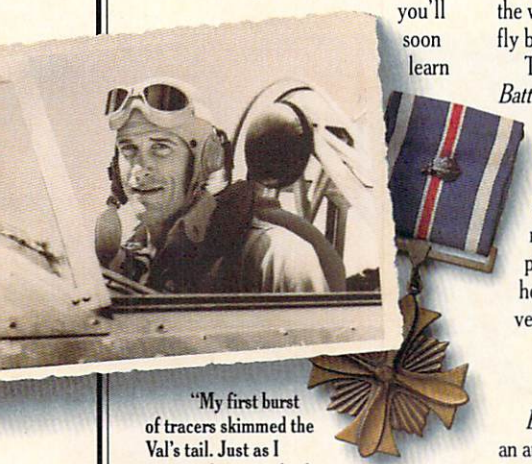
[LUCASFILM ON THE ART AND SCIENCE OF ENTERTAINMENT.]

COMBAT FLYING IS PURE SCIENCE. UNTIL THE ENEMY SHOWS UP.

IF YOU'VE EVER FLOWN a PC, you know how it can simulate every nuance of an airplane's performance envelope. And if you concentrate hard enough on the instruments, you'll soon learn what the limits are.

But when you're making a torpedo run at an enemy flattop, with flak blowing by your canopy and two Zeroes chewing up your tail, all that goes out the window. And you learn to fly by the seat of your pants.

That's the idea behind *Battlehawks 1942*,™ the new WWII naval air combat simulator from Lucasfilm Games. Besides the intellectual challenge of mastering six classic carrier planes, you get the white-hot rush of diving into some very hairy situations.



"My first burst of tracers skimmed the Val's tail. Just as I corrected my aim, he dove. I stuck like glue to his plane, taking it apart by bits and pieces. Suddenly, he pulled up and bailed through the shattered canopy. Moments later, the Val exploded..."

RELIVE HISTORY. OR REWRITE IT.

Battlehawks 1942 gives you an authentic pilot's eye view — from both sides — of four battles that turned the tide in the Pacific. As an American carrier pilot, you'll fly Wildcat fighters, Dauntless dive bombers and Avenger torpedo bombers. From the Japanese side, you'll fly Zeroes, Vals and Kates.

You'll tighten up your combat skills in a dozen training missions, then fly more than 30 real ones, from the Coral Sea to the Santa Cruz Islands.

"In early 1942, American planes were no match for my Zero. I was a hawk in a flock of geese — soaring, looping, pouncing, destroying. I was truly saddened for the brave men in those sluggish planes. All too soon, the planes got better..."

EVEN THE THEORY IS REAL.

The technical detail and historical depth of *Battlehawks 1942* are bound to satisfy the most hard-core simulation buffs. Everything has been exhaustively researched, right down to the optimum airspeed and attack angle for dropping torpedoes.

Bombing a moving ship half a mile below, diving at 250 mph and dodging flak, can be a little tricky.

Your Wildcat's heavier armor and guns win in a shootout, but watch out if a Zero gets on your tail.

Flight characteristics and instruments are authentic. So are weapons and enemy tactics. About the only feature that isn't authentic is something combat pilots never dreamed of. An instant replay camera.

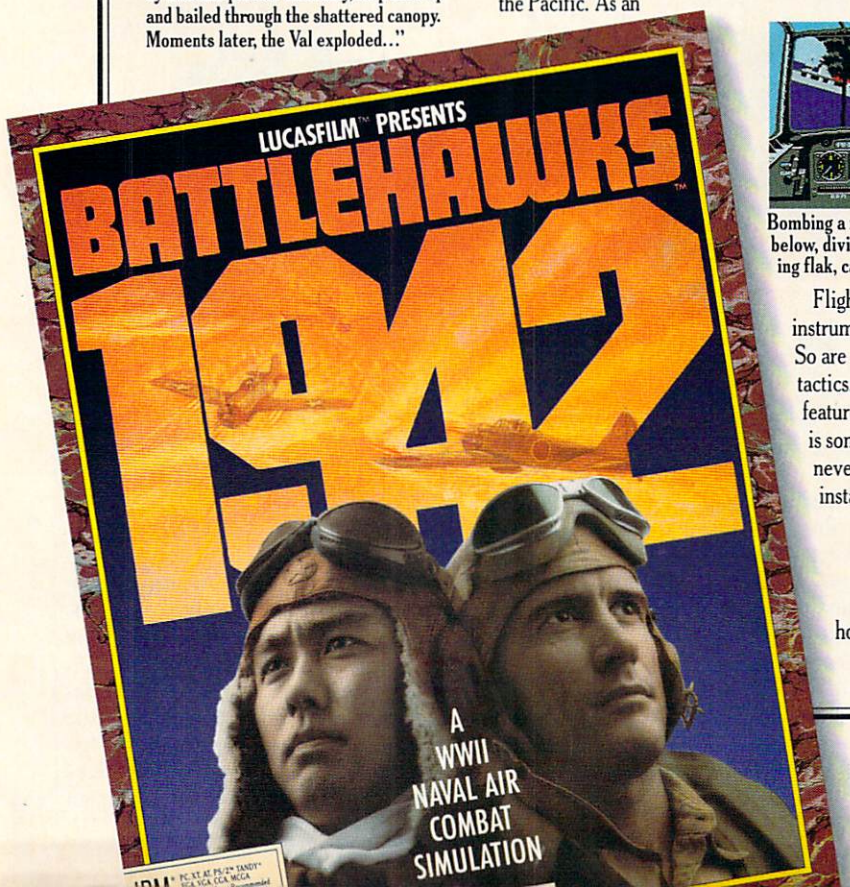
GROUND SCHOOL IT ISN'T.

We asked WWII pilots how to make *Battlehawks 1942* feel like the real thing. To a man, they said make it *intense*.

So instead of polygon-block graphics, we use high-resolution, digitally-rendered images. Ships and planes look almost photographic. Bombs and torpedoes explode in infernos of flames and smoke. The feeling, as one veteran pilot put it, is like flying into a beehive.

And that's where the science leaves off, and the fun starts.

LUCASFILM™ GAMES



Battlehawks 1942 is available for IBM and close compatibles. Amiga and Atari ST versions will be available in early 1989. IBM is a trademark of International Business Machines, Inc. Atari ST is a trademark of Atari Corp. Amiga is a trademark of Commodore Electronics Ltd. All elements of the game fantasy are trademarks of Lucasfilm Ltd. TM & ©1988 *Lucasfilm Ltd. All rights reserved.*

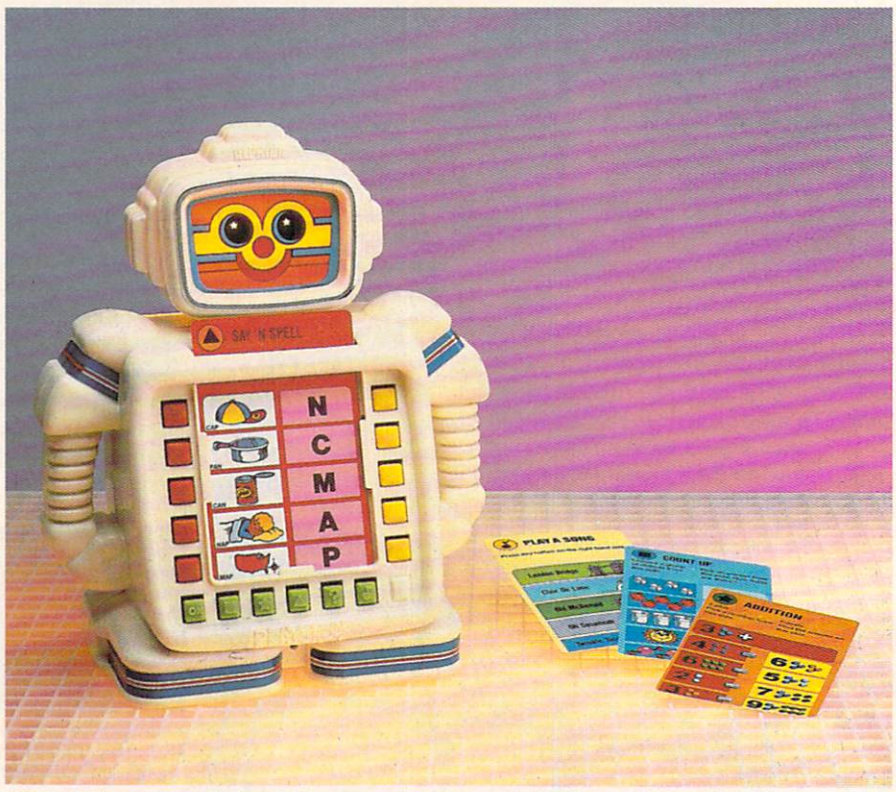
Educational Toys with an Electronic Edge

Ten Talking, Singing, and Ringing Gizmos That Teach as They Entertain

BY BARBARA GOLLON

Right around Christmastime, kids and their parents are bombarded with ads for the latest toys and educational gifts. Most parents look for educational value, while kids are drawn toward the fun and the high-tech. The ideal gift, then, is one that combines entertainment, technology, and education, all at a reasonable price.

Of course, personal computers with the appropriate software fit this description, but there is another category of computer-like products that gets cheers from both kids and their parents. Here's a look at some of the hottest electronic learning toys available this holiday season, along with a checklist of things to look for when shopping.



Alphie II's *low price and cheerful lessons make it a practical and entertaining gift for 3–8 year-olds.*

Alphie II

MANUFACTURER: Playskool, Inc.
PHONE: (401) 727-5000
SUGGESTED AGES: 3–8
PRICE: $28

Alphie II is a child's robot. Activity cards with six games introduce letters of the alphabet, spelling, concepts of numeration, counting, colors, and shape matching. Kids can even play songs and musical chairs. Alphie II's happy face lights up three times with an upbeat musical jingle at a correct answer.

Alphie II is sturdy, colorful, battery-efficient, game-expandable, and has just the right-size buttons for little hands. It's primarily suited for a child over 3 years old who can concentrate for five minutes at a time and has already been introduced to letters and numbers. Additional activity sets are available for $5 each.

Small Talk

MANUFACTURER: Video Technology
PHONE: (312) 272-7076
SUGGESTED AGES: 2 1/2–5
PRICE: $40

BARBARA GOLLON *is a professional educator, freelance writer and educational computer consultant living in New York City.*

Alexander Graham Bell would never have believed it. Small Talk is Video Technology's electronic interactive telephone-learning center. It presents the numbers 0 through 9, introduces basic shapes, and permits youngsters to call familiar people in their lives (like the policeman, fireman, or doctor). The built-in voice synthesizer provides clues that strengthen communication skills.

Small Talk is safe and comfortable, and children can easily dial any character, play songs, or just wait for the phone to ring. The keyboard sounds include chirps, bleeps, and baas, and the bumble-bee-yellow phone receiver stays in its cradle even when the portable unit is plopped or dropped. For preschoolers who enjoy imitating a telephone-addicted parent, this one is a modern winner.

Talking School Bus

MANUFACTURER: Video Technology
PHONE: (312) 272-7076
SUGGESTED AGES: 3–5
PRICE: $45

The Talking School Bus is a plastic replica of a real school bus. A voice synthesizer asks the child questions from categories on the activity selection wheel, which includes letters, numbers, counting, spelling, and music. The child communicates with the bus by placing electronic blocks into the bus windows. The Talking School Bus identifies incorrect answers for children and repeats the names, numbers, and sounds. It teaches letter and numeral recognition, and reinforces the concepts vocally. Visual-motor skills are

In a Battle Helmet, No One Can Hear You Scream.

You can hear footsteps running on steel. Shouts in a strange language. Echoes.

Where are they you wonder. What is this Battle Station?

Casey clicks off the safety on her Hyper-Uzi. It thrums to life. Tension.

You flip down your helmet. The world goes suddenly quiet. Your temples scream. The radar in your helmet flashes with color. "Here they come..."

You Started as Raw Recruits. Five eager faces who thought Interstellar Patrol was cake. You learned fast.

Then, Disaster. A dispute between colonists. A mysterious vision. Bloody clues pointed to the sky.

Surrounded in Hyperspace. Friendlies in Yellow, Targets in Red. Electronic fireblossoms.

No On-Disk Copy Protection. 16 Colors for EGA.

Sentinel Worlds I: Future Magic

Science Fiction Mystery Role Playing Game Designed by Karl Buiter

To Order: VISIT YOUR RETAILER, or call 800-245-4525 from US or Canada, 8am—5pm PST for VISA/MC orders, or mail check (US$) or VISA/MC #, cardholder name, and exp. date to: Electronic Arts Direct Sales, P.O. Box 7530, San Mateo, CA 94403. Tandy/IBM versions: $49.95 for 5¼"; $54.95 for 5¼" & 3½" dual-pack. Add $3 for shipping/handling. CA residents add 6.5% sales tax. Allow 1-3 weeks for delivery. Thanks.

ELECTRONIC ARTS®

CIRCLE READER SERVICE 34

LEGO TC Logo *takes traditional building blocks a step further with movable parts controlled by a computer*

strengthened through block-building and manipulation.

The Talking School Bus is an active, multi-sensory, and educationally reliable toy for preschoolers. However, adult assistance is critical to ensure a child's sustained interest.

Touch & Discover

MANUFACTURER: Texas Instruments
PHONE: (806) 747-1882
SUGGESTED AGES: 2–5
PRICE: $65

Texas Instruments, a leader in microchip technology, has added Touch & Discover to its repertoire of electronic learning toys. In the first activity set, "Beginning Discoveries," children explore the alphabet, numbers, animals, shapes, and colors with Walt Disney's Mickey Mouse and friends as teacher-guides. Touch & Discover (like its cousin Touch and Tell) brilliantly sequences developmental skills, but offers greater interactivity and voice/music variety than its predecessor. Expansion sets and cartridges can be purchased as a child achieves mastery.

Adult assistance is necessary for inserting the teaching templates.

VideoSmarts

MANUFACTURER: Connor Toy Corp.
PHONE: (715) 842-0910
SUGGESTED AGES: 3–5
PRICE: $49

VideoSmarts, an interactive video learning system, transforms a passive young television viewer into an involved participant. The VideoSmarts system consists of a push-button "first computer" with a VCR interface, and a live-action/animation VHS videocassette tape. The first video is a 30-minute journey with Teaching Teddy and Friends and is all about numbers (1 through 5) and comparisons (size, shape, color). The video lessons are synchronized with the computer with the help of Teaching Teddy and Professor Set, the concept-builder; they ask questions, and the child must press one of four answer buttons. If the response is quick and correct, a happy green glowworm lights up and the computer voice says, "Good Work" or a similar message.

The female computer voice is a positive and familiar first teacher. Although the verbose video introduction put my 3-year-old product-tester to sleep, the VideoSmarts series may effectively build skills for TV learners who love colorful graphics.

WHAT TO LOOK FOR IN ELECTRONIC LEARNING TOYS

Quality electronic learning toys are multisensory, user-interfaced units that build developmental skills, come in all sizes and shapes, stimulate curiosity, may or may not involve microchip technology, and are enough fun to sustain play. When shopping for one of these products (usually found in toy stores) ask yourself the following questions to determine if it is an appropriate gift for your child or young friend.

1. Will the toy keep the child's attention?
2. Does it promote and develop cognitive skills that are appropriate to the age group?
3. Will the toy last and for how long?
4. Is it colorful and easy to assemble?
5. Are the voice emulators comprehensible and clear?
6. Are there suggestions for reinforcement activities (for preschoolers) following play time?
7. Does this toy successfully introduce and/or strengthen academic skills?
8. Can the child play independently with this toy?
9. Will the toy grow with the child?
10. Are you willing to pay for frequent battery replacements?

ComputerSmarts

MANUFACTURER: Connor Toy Corp.
PHONE: (715) 842-0910
SUGGESTED AGES: 6–12
PRICE: $89

ComputerSmarts is a portable, TV/VCR-interfaced system with voice synthesis, a QWERTY-style keyboard unit, expansion cartridge slot, and a Video Tutor cassette tape. The language arts curriculum included in the system contains word games, keyboarding skills, math, music, and TV Smart, a game played by hooking ComputerSmarts up to a VCR.

The "Computer Smarts Gang," a high-interest, 50-minute videotape, tutors youngsters on alphabetical order, working with the dictionary, identifying parts of speech, and keyboarding and typing skills. Points are awarded for speed and accuracy, and a robotic voice gives verbal rewards.

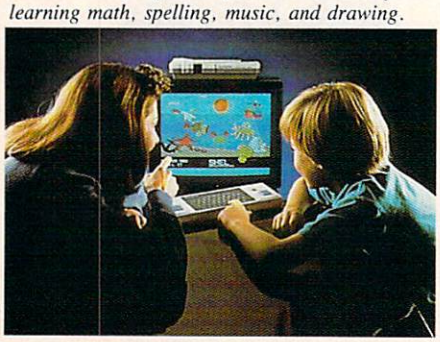
To avoid information overload, preview the 50-minute video yourself and subdivide the lessons. ComputerSmarts is also a portable computer look-alike with built-in games like Word Scramble and Hangman that are pure fun.

Socrates

MANUFACTURER: Video Technology
PHONE: (312) 272-7076
SUGGESTED AGES: 3+
PRICE: $140

Video Technology, at the vanguard of self-contained electronic toys and maker of the Laser 128 EX desktop computer, has caught the imagination of young and old with Socrates, a fun-filled video learning system. The wireless remote-control unit has a separate and portable flat-panel keyboard, cables easily to a color TV, accesses a VCR for recording your child's responses, and has over 90

Socrates *can plug directly into a television for learning math, spelling, music, and drawing.*



JET

The award-winning, premier jet fighter simulator. Exciting and beautiful carrier-based sea missions complement multiple land-based combat scenarios. Easy flight controls make Jet an ideal way to explore the expanding world of SubLOGIC Scenery Disks.

NEW for the IBM PC! Jet Version 2.12 offers FULL EGA ENHANCEMENT with 640×350 16-color resolution. Only Jet and Microsoft Flight Simulator have it!

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* Jet for the IBM PC, Apple II, Commodore 64/128, Atari ST, and Amiga computers includes a FREE beautiful Japan Scenery Disk, a $24.95 extra value!

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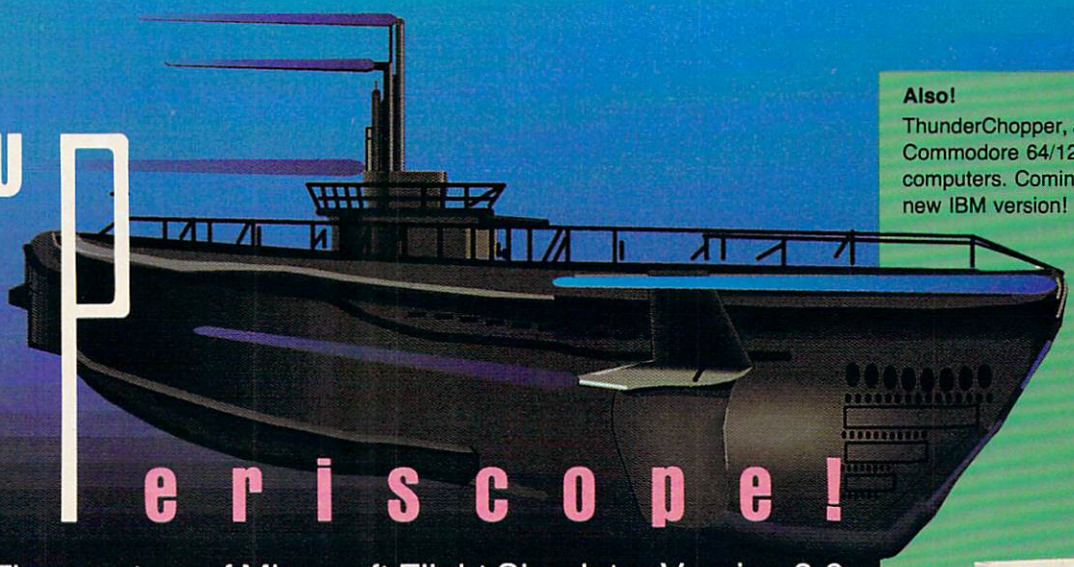
SubLOGIC ORDER LINE: (217) 359-8482 (800) 637-4983 (outside Illinois)

CIRCLE READER SERVICE 62



up periscope!

The creators of Microsoft Flight Simulator Version 3.0 take submarine simulation to new depths of FUN!

See your dealer, or contact ActionSoft for more information. Up Periscope! is available on disk for the IBM/Tandy/compatibles and Commodore 64/128 computers. For direct orders please indicate which computer version you want, enclose $29.95 plus $2.50 for shipping and handling, and specify UPS or first class mail delivery. Visa, MasterCard, and American Express charges accepted.

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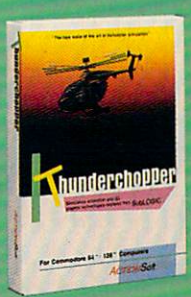
Also!
ThunderChopper, available for the Commodore 64/128 and Apple II computers. Coming soon, a great new IBM version!



CIRCLE READER SERVICE 74

built-in creative programs for math, spelling, word games, music, and art.

A voice cartridge for voice synthesis is available for $40. For pre-schoolers (ages 3–5), a touch pad accessory ($50) can be interfaced for drawing or writing with a basic-skills cartridge. For older students with an optional mouse system ($50) that includes the tablet and "CADD Series" cartridge, the system can introduce CADD (computer aided drafting/design).

In my own experience, Socrates has motivated both mainstream and special-needs youngsters. It is innovative, individualized, has colorful graphics and animation, and is highly supportive for teaching and learning at home or in school.

Computer Fun

MANUFACTURER: Texas Instruments
PHONE: (806) 747-1882
SUGGESTED AGES: 4–8
PRICE: $90

Computer Fun, making its holiday season debut, introduces children to math- and reading-readiness skills by using voice recognition (through a built-in microphone), in addition to a voice synthesizer. Computer Fun is not a typical drill-and-practice toy. Its multisensory appeal and variety of activities build skills such as eye-hand coordination and direction. The unit closely resembles a laptop computer, with a touch-membrane QWERTY-style keyboard and a liquid crystal read-out for pixel animation with voice reinforcement.

In one game, "Robot Moves," a youngster programs a sequence of movement activities that provides practice with short-term visual and auditory memory and improves concentration. In other activities, Computer Fun requires a "Yes" or "No" verbal response. If the built-in microphone does not receive the child's voice, then the phrase "Press Yes or No" prompts manual input.

Computer Fun is one of the most sophisticated voice-active electronic learning products made today.

Pre-Computer 1000

MANUFACTURER: Video Technology
PHONE: (312) 272-7076
SUGGESTED AGES: 9–14
PRICE: $90

Pre-Computer 1000 is designed to entertain and interest an older group, while teaching computer literacy. The self-contained unit consists of a QWERTY-style soft-touch keyboard with a small LCD readout. It's preprogrammed to teach touch-typing and offers a variety of activities and a choice of self-selected levels of difficulty. Subjects include math, science, geography, history, and general knowledge. There is also a Hangman and Word Scramble game and an introduction to the BASIC programming language.

For trivia buffs of all ages, Pre-Computer 1000 suits the gift-giver's crossover category of toy/skill-builder. This portable computer emulates the "real thing" and functions flawlessly.

LEGO TC Logo (for Apple IIe or IIGS)

MANUFACTURER: LEGO Systems Inc.
PHONE: (203) 749-2291
SUGGESTED AGES: All ages
PRICE: $485

LEGO TC Logo was designed by Seymour Papert, the father of Logo programming, and developed by LEGO Systems (famous for building-block toys). The Apple-interfaced learning system explores scientific domains, reinforces logical thinking/problem solving skills, and nurtures the learner as he or she plans, constructs, and runs machines. Kids connect LEGO blocks, gears, and motors to an interface box, then place an expansion card inside an Apple IIe or IIGS computer to run the machines that are programmed with simple Logo instructions. Using computer commands, children can turn motors on or off, control light sensors, and make their own creations move.

Although LEGO TC Logo was designed for classroom use, home use of this product has grown enormously. ■

Software for Learning and Leisure

Comprehensive and Capsule Reviews of New and Noteworthy Programs for Education, Family Productivity, and Entertainment

The following table and ratings key relate to full and capsule software reviews. Listed are various types of computers as designated under "System Requirements" and the models included under each designation. Any additional hardware, software, or memory listed is required unless noted as "recommended" or "optional." When more than one computer is listed under "System Requirements," the machine marked with an asterisk (*) is the one on which the software was reviewed. Requirements are *not* listed where obvious (for instance, printers with graphics programs). Operating system requirements, such as MS-DOS or the Macintosh System file, are listed only when they're not the standard, minimum requirement (DOS 2.0 for IBM PC or compatibles, System 3.2 for the Macintosh, or ProDOS for the Apple II). Available disk sizes are listed for those systems that can use both 5.25 and 3.5 inch disks.

Ratings Key: O Poor; ★ Average; ★★ Good; ★★★ Very Good; ★★★★ Excellent.

Designation	Models
512K Amiga	500, 1000, 2000
48K Apple	II/II Plus/IIe/IIc/IIGS (in IIe/c mode)
64K Apple	II Plus/IIe/IIc/IIGS (in IIe/c mode)
128K Apple	IIe/IIc/IIGS (in IIe/c mode)
128Ke Apple	IIe (enhanced ROM)/IIc/IIGS (in IIe/c mode)
Apple IIGS	IIGS only
48K Atari	800/600XL/800XL/65XE/130XE
512K Atari ST	520ST/1040ST/Mega ST
C 64	C 64, C 128 (in C 64 mode)
IBM PC	PC/XT/AT, PS/2, and compatibles
128K Macintosh	128K/512K/512Ke/Plus/SE/II
512K Macintosh	512K/512Ke/Plus/SE/II
512Ke Macintosh	512Ke/Plus/SE/II
1MB Macintosh	Plus/SE/II

Education/Family Productivity

Reading and Me

SYSTEM REQUIREMENTS: 128Ke Apple, 256K IBM PC*. Color monitor. Printer and mouse optional. 5.25- and 3.5-inch disks.
PUBLISHER: Davidson & Associates, Inc., 3135 Kashiwa Street, Torrance, CA 90505; (800) 556-6141, (213) 534-4070 in CA
PRICE: $40
PUBLISHER'S SUGGESTED AGES: 4–7
COPY PROTECTED: Yes. $10 backup.
OVERALL RATING: ★ ★ ★
DOCUMENTATION: ★ ★ ★
ERROR HANDLING: ★ ★ ★

TIMES OF LORE

Arcade adventure at its finest...

Fast-paced, exciting combat demands the use of all your wits and endurance to best a world teeming with assassins, wizards and monsters. Experience captivating graphics of an unprecedented calibre. Relentless opponents will hone your combat skills to a razor's edge. A simple yet powerful menu and icon interface provides effortless interaction with the world and its people, while the incredibly smooth animation presents a continuous panorama of action and adventure.

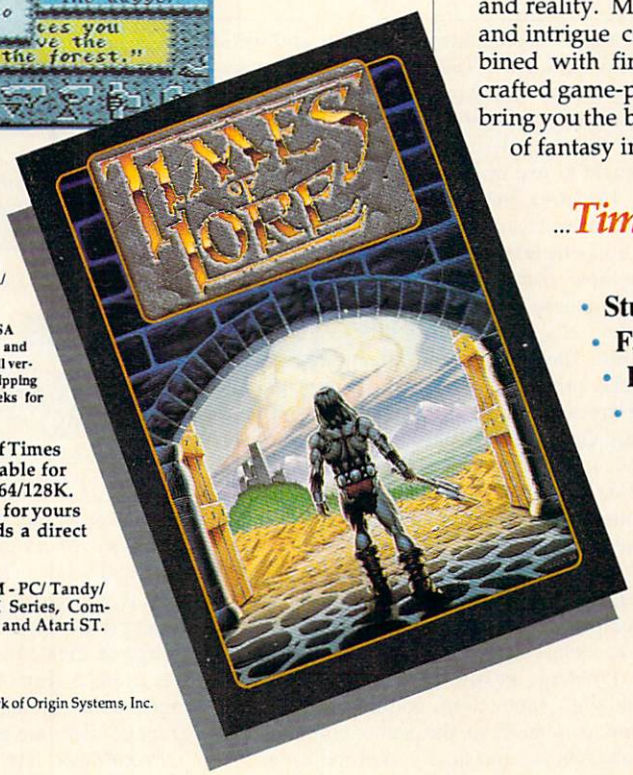
Fantasy role-playing at its best!

Astonishing realism is yours through scores of unique characters and sophisticated conversations. Immerse yourself in the sights and sounds of an ancient world embroiled in turmoil—the disappearance of the king and his young son —the struggle for control of the realm. The stakes are high; your role as the hero-for-hire requires all the courage and savvy you can muster. Your quest for truth will teach you much of the distinction between appearances and reality. Magic and intrigue combined with finely crafted game-play bring you the best of fantasy in...

Screens shown are for the Commodore.

...*Times of Lore*

- **Stunning graphics and animation**
- **Fast-paced combat action**
- **Dynamic conversations**
- **Compelling plot**



To get your copy of Times of Lore, either

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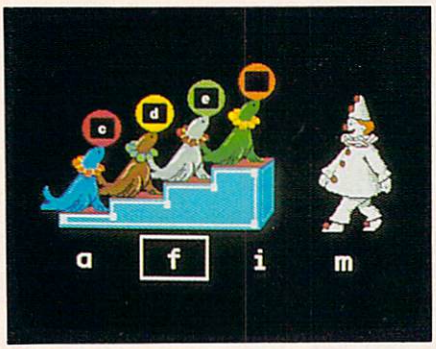
GRAPHICS QUALITY: ★ ★ ★

EASE OF USE: ★ ★ ★



Colorful seals, clowns, and magicians introduce letters and words in Reading and Me.

Seals, clowns, magicians, and other animated characters give your child positive reinforcement while teaching new words in Davidson's latest pre-reading and early-reading skills program, *Reading and Me*. Suitable for children from 4 to 7, the activities are simple, well-designed, and comprehensive

Reading and Me is logically organized. There are four levels—readiness, alphabet, phonics, and words—and within each level are three programs that increase in difficulty. Colorful animated graphics and optional sound perk up the otherwise straightforward series of activities. A version with digitized speech is available for the Apple IIGS for an additional $10.

As in all of Davidson's packages, educational details are carefully attended to. For example, in an activity that asks children to identify initial letters, all extraneous type (such as a message that instructs users to press ESC to quit) disappears. This enables children to concentrate on the task at hand, with a minimum of distraction.

Simple cartoons and music provide reinforcement throughout the programs. When a wrong answer is entered, the screen gently urges "Try again." After a second wrong answer, the program gives the correct answer and moves on, so the user won't lose time or motivation. As an added enticement, users get to print a special certificate.

In spite of a simple user interface, my daughter Sarah, who is almost 4, had trouble manipulating the computer keys. She did much better with a mouse. If you plan to buy this program for a child younger than the publisher's suggested age range or who is not yet computer-comfortable, be prepared to offer patient help. Seven-year-old Rachel was able to handle the keystrokes, but she grew bored with the activities fairly quickly.

Reading and Me is solid, forgiving, orderly, and predictable. It is not flashy, by any means. But it handles its subject matter competently and it treats its tender users with respect.

—DEBORAH KOVACS

Stickybear Word Problems

SYSTEM REQUIREMENTS: 48K Apple II, 256K IBM PC*. 3.5- and 5.25-inch disks (IBM and Apple).

PUBLISHER: Weekly Reader Software, 10 Station Place, Norfolk, CT 06058; (800) 327-1473

PRICE: $40

PUBLISHER'S SUGGESTED AGES: 7–9

COPY PROTECTED: Yes

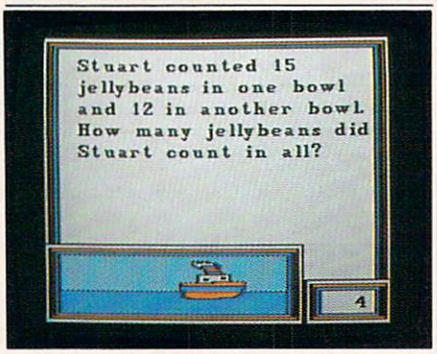
OVERALL RATING: ★ ★ ★ ★

DOCUMENTATION: ★ ★ ★ ★

ERROR HANDLING: ★ ★ ★ ★

GRAPHICS QUALITY: ★ ★ ★ ★

EASE OF USE: ★ ★ ★ ★



With a correct answer to this Stickybear *word problem, an animated ship putts across the screen.*

Dread is a common reaction to arithmetic word problems. Talking to elementary and junior high school teachers, I repeatedly hear that the greatest problem most children have in arithmetic is applying the facts they are taught to real or simulated situations.

However, the writers of *Stickybear Word Problems* seem to know something most arithmetic texts do not. Kids aren't interested in how many miles Mr. Smith drives to Akron or in how many tires Acme Tire Company sells. They deal in different commodities. The familiar and affectionate Stickybear presents problems of guppies and jellybeans, bicycle rides, and elephant feeding. One of 8-year-old Jamie's favorites was calculating the number of fingers on the Big Blue Monster's hand. Thirteen-year-old John enjoyed figuring out how many pies Mom baked. And even 3-year-old Deborah, who doesn't know a mum from a violet, enjoyed putting her counting bears in front of the computer and figuring out that six mums and five violets totaled 11 flowers in all!

Problems are offered in order of difficulty: addition, subtraction, addition and subtraction combined in the same problem, two subtractions, and finally, multiplication.

If Mom and Dad sit down at the computer and read the problems out loud, this program is enjoyable for a very young child and the interaction can enhance the value for youngsters of any age. Don't expect even a well-written and graphically enjoyable program to turn your children into math experts, but with the reward of a little time spent with you at the computer, your children will gradually work through the steps to harder and harder challenges.

This is a smart program; it constantly checks progress and adjusts the level of difficulty to the children's needs. It also remembers each child's progress from session to session and starts where they left off. Several options let parents individualize the problems for each child, and print the results. The on-screen report cards, however, have no print option. In addition to the six levels provided by the infamous Stickybear, parents can add up to 25 custom problems.

—MARLENE BUMGARNER ELTGROTH

PrintPower

SYSTEM REQUIREMENTS: 256K IBM PC. CGA. 3.5- and 5.25-inch disks.

PUBLISHER: Hi Tech Expressions, 584 Broadway, New York, NY 10012; (800) 447-6543

PRICE: $15

PUBLISHER'S SUGGESTED AGES: All ages

COPY PROTECTED: Yes

OVERALL RATING: ★ ★ ★

DOCUMENTATION: ★ ★ ★

ERROR HANDLING: ★ ★ ★ ★

GRAPHICS QUALITY: ★ ★ ★ ★

EASE OF USE: ★ ★ ★ ★

Create invitations, promotional material, and personalized stationery with PrintPower.

Lots of programs print banners, signs, and stationery. *PrintPower* offers more card formats and border choices than most and has attractive, detailed graphics. The big surprise is the price—$15. There's no design feature to let you create new graphics, but you can use graphics from *AwardWare*, another program from the same company, and future graphics disks are promised.

PrintPower lets you create double-fold cards in either vertical or horizontal styles. There's also a single fold "tent card" that looks like a menu. Cards can have text and graphics in all sections, including the back.

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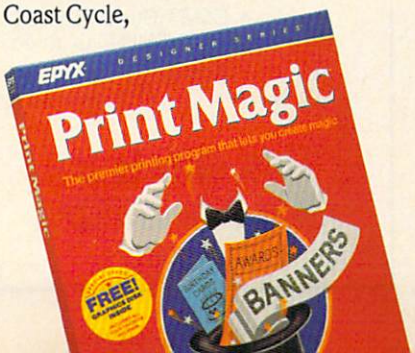
Cards, flyers, whatever: instead of settling for the run-of-the-mill stuff that less sophisticated print programs produce, try a little...well, magic.

And for those who believe in magic: we might just whisk you off to Palm Springs.

It's true. When you come to see Print Magic before January 31, you can also enter our grand sweepstakes. Get a crack at a roundtrip for two to the Hyatt Grand Champions Resort near Palm Springs...not to mention a bunch of Kenwood CD players, Nishiki® road bikes from West Coast Cycle,



Casio® keyboards, TeleQuest® Memory phones, Memorex® premium paper packs—and a Realistic® VCR from Radio Shack.

So check it out. Whether you win big or simply get acquainted with our print program, something magical is bound to happen.

Apple® IIe/c/GS, IBM & compatibles, and Tandy (featuring the DeskMate™ interface).

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CIRCLE READER SERVICE 35

CAPSULE REVIEWS

EDUCATION/FAMILY PRODUCTIVITY

TITLE/PUBLISHER PRICE	SUMMARY	SYSTEM REQUIREMENTS	RATINGS CP	O	D	EH	GQ	EU
Facts & Faces of U.S. Presidents Visatex Corp. 1745 Dell Ave. Campbell, CA 75008 (408) 866-6596 $50	Presidential history trivia quiz for ages 13+. You gain points by answering questions about U.S. Presidents, then spend those points to uncover and guess the identity of their hidden faces. Forty presidents to identify and more than 500 questions yield hours of engaging learning. *—Rob Gilpin*	1MB Macintosh. HyperCard v1.1	N	★ ★ ★	★	★ ★ ★ ★	★ ★ ★	★ ★ ★ ★
Footprints in History The Salinon Corp. 7424 Greenville Ave. Suite 115 Dallas, TX 75231 (214) 692-9091 $40	Create a timeline that combines events of historical significance with important dates in a person's or organization's past. Printing the string of historical facts on parchment paper makes an attractive gift. Good for enhancing a family tree. *—Steve Williams*	256K IBM PC with DOS 2.1 (320K required with DOS 3.0). 3.5-inch and 5.25-inch disks.	N	★ ★	★ ★ ★	★ ★	★	★ ★ ★ ★
Grammar Mechanics Mindscape Inc. 3444 Dundee Rd. Northbrook, IL 60062 (312) 480-7667 $50	Seven- to 11-year-olds collect prizes as they correct grammatical errors in sentences. Attractive screen displays and pleasant sound effects provide at-a-glance appeal, but inadequate feedback and flaws in the program's structure make the lessons frustrating. *—Miriam Furst*	48K Apple. Color monitor recommended. 5.25-inch disks.	Y	★	★ ★	★	★ ★ ★	★
Print 5 Hi Tech Expressions 584 Broadway, Suite 1105 New York, NY 10012 (212) 941-1224 $15	Five practical programs for 8- to 12-year-olds include a simple word processor for letters, a calendar and phone log for records, a club organizer, calculator, and secret code maker and breaker. Great for helping your child start and manage a new club, and can be an introduction to recordkeeping via computer. *—Doris Anderson*	128K Apple, 256K IBM PC with CGA*. Printer. 3.5- and 5.25-inch disks (Apple and IBM).	N	★ ★ ★	★ ★ ★	★ ★ ★	★ ★	★ ★ ★

Ratings Key: CP Copy Protected, yes or no; **O** Overall; **D** Documentation; **EH** Error-Handling; **GQ** Graphics Quality; **EU** Ease of Use; O Poor; ★ Average; ★★ Good; ★★★ Very Good; ★★★★ Excellent; **N/A** Not Applicable; *Computer Used for Review

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FAMILY COMPUTING

CAPSULE REVIEWS

ENTERTAINMENT

TITLE/PUBLISHER PRICE	SUMMARY	SYSTEM REQUIREMENTS	RATINGS CP	O	D	PS	GQ	EU
Colony Mindscape, Inc. 3444 Dundee Rd. Northbrook, IL 60062 (312) 480-7667 $50	Using 3-D graphics and digitized sound, this arcade game puts you in a world that is hauntingly real. The attention to detail makes the game slow and difficult to maneuver in, but does not prevent *Colony* from being engrossing, challenging, and, at times, fun. *—Alex Shakar*	256K IBM PC with CGA, 512K Macintosh*. 5.25- and 3.5-inch disks (IBM).	Y	★ ★	★	★ ★	★ ★ ★	★ ★
L.A. Crackdown Epyx, Inc. 600 Galveston Dr. Redwood City, CA 94063 (415) 366-0606 $40–$50	Stake out a company suspected of drug smuggling with the aid of a rookie cop who has a lot to learn about police work. As lieutenant, you call the shots but are limited by the command menu, which lists your only options. Predictable interactions and a slow story make this an adventure for dedicated detectives only. *—Anil Babbar*	128K Apple, 512K Apple IIGS, C 64/128, 256K IBM PC with CGA*. 5.25- and 3.5-inch disks (IBM). Joystick recommended.	Y	★	★ ★	★	★ ★	★ ★
Nobunaga's Ambition Koei Corp. 20000 Mariner Ave. Suite 100 Torrance, CA 90503 (213) 542-6444 $60	Frustrating, yet oddly addictive, this historically based wargame gives one to eight players the chance to conquer sixteenth-century Japan using military, economic, and diplomatic strategy. Even though it is easy to play, the game is very hard to complete. However, the graphics and animation will keep you amused. *—Jeff Donahue*	256K IBM PC with CGA. 5.25- and 3.5-inch disks.	Y	★ ★	★ ★ ★	★	★ ★ ★	★ ★
Wall Street Raider IntraCorp, Inc. 14160 SW 139 Ct. Miami, FL 33186 (305) 252-9040 $35	Your goal is to get richer than your opponents over a period of time by buying, selling, and controlling 150 companies. The dense interface and complexity of subject matter is not for the faint of heart. But if you've always wanted to issue junk bonds or attempt mergers, this may be the game for you. *—Robert Gehorsam*	512K Amiga, C64/128, 256K IBM PC*. 5.25- and 3.5-inch disks (IBM).	N	★ ★ ★	★ ★	★ ★ ★	N/A	★

Ratings Key: CP Copy Protected, yes or no; **O** Overall; **D** Documentation; **PS** Play System; **GQ** Graphics Quality; **EU** Ease of Use; O Poor. ★ Average; ★★ Good; ★★★ Very Good; ★★★★ Excellent; **N/A** Not Applicable;
*Computer Used for Review

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Flight notes # 2A

Full EGA enhancement is now available on Jet Version 2.14 for the IBM PC/Tandy/compatibles. We've also added this enhancement to the latest version of Microsoft Flight Simulator. Jet and Flight Simulator are the only flight simulations we know of that take advantage of the full 640x350 16-color resolution mode. If your system is equipped with an EGA graphics card, you're in for a beautiful surprise.

Wrapping Up Europe - The deadline for entering our "Find Red Square" contest was November 15th, 1988. Current plans call for a mid-December drawing to determine the contest winner. This contest, requiring you to use **Flight Simulator** or **Jet** to locate Red Square on our new **"Western European Tour" Scenery Disk,** was as much fun for us as it was for you! Watch for another Scenery Disk promo contest next year.

"Western European Tour" Scenery Disk provides a unique international adventure, encompassing a wide variety of cultures in a rather concentrated area. You can fly from the Tower of London, past the Eiffel Tower to the towering skyscrapers of Munich in a matter of hours with Flight Simulator, or in just 30 minutes with Jet. The disk includes a radio nav-aid chart that lets you plan a complete European flight tour; detailed sectional area charts keep you on course to your specific destinations. Europe's concentrated scenery also provides good navigation cues, making it an ideal challenge for the beginning pilot's navigational skills. If you can hold a general heading you will eventually locate your destination. This disk's combination of scenery details and navigational challenges should appeal to just about everyone.

Its Back! Not advertised since early 1984, the classic **Night Mission Pinball** will be back in production once again by the time you read this. Priced at only $29.95, now everyone can afford to add this classic to their software collection. If you're a family person like myself, be prepared to be without your computer for extended periods of time. Pinball's uncanny realism and general appeal has a way of captivating everyone.

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You have a choice of border widths and can stamp graphics of various sizes anywhere on the card. There are six print fonts for cards, plus variations such as bold, shadow, and five other styles. One plus that some programs don't offer: If text is placed on a graphic, you can highlight it for better visibility. You can also use *PrintPower* to create banners up to 42 pages long and make signs and stationery in horizontal, vertical, or half-page styles, though it won't do calendars.

You can select most commands either from a menu or by pressing a single key. Some features, such as those that highlight text or add multiple fonts to a card, use a control-key sequence. If you type in more text than there is room for, the program will continue to accept it, but will not let you print the card until you've redistributed the text yourself. Text can be centered or justified left or right, but word wrap is not available.

At print time, you can choose between final and draft print modes. Draft is faster, but final comes out darker. You can preview graphics in the print mode if necessary, but you probably won't want to wait for the graphic to appear.

While *PrintPower* isn't the most comprehensive program on the market in its category, it could well be the best for the price. Print programs like this are at the top of most computer owners' favorite software lists. With a price tag like this, there's no reason why every MS-DOS computer user shouldn't own *PrintPower*. —TAN SUMMERS

EssayEase

SYSTEM REQUIREMENTS: 128K Apple. 5.25-inch disks.

PUBLISHER: MindPlay, 100 Conifer Drive, Building #3, Danvers, MA 01923; (508) 774-1760

PRICE: $60

PUBLISHER'S SUGGESTED AGES: 8–18

COPY PROTECTED: Yes

OVERALL RATING: ★ ★ ★

DOCUMENTATION: ★ ★ ★

ERROR HANDLING: ★ ★

GRAPHICS QUALITY: ★ ★ ★

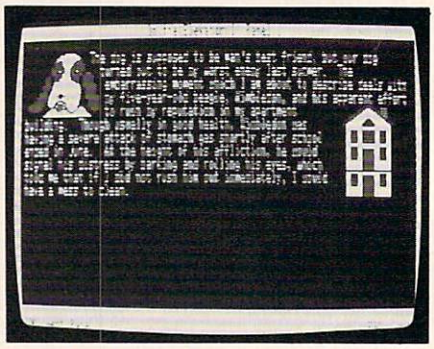
EASE OF USE: ★ ★ ★ ★

Writing essays and stories is a major task for many children. Few youngsters write for fun, so a program that encourages them to write at home can help them develop better writing skills. *EssayEase* makes the writing process a little easier so that budding writers are more likely to persevere.

Before children write with *EssayEase*, they can get ideas from a list of topics on-screen and use built-in outline forms to organize these ideas. If the suggestions and outline styles aren't enough, they can customize the program by creating their own models.

When they've answered a few pointed questions, read and responded to some instructions, and completed the outline, it's time to print the outline as a guide and begin writing the essay.

In *EssayEase*, children write one section (called a paragraph) at a time, and a section can contain up to 10 screens (called panels).



Essay Ease *helps students practice their writing.*

They work on old paragraphs, create new ones, and revise their work as needed.

Children pick a picture from the four pages of built-in graphics, place it where it will look best, and continue to write. Or they can write a whole essay and illustrate later. Either way, they can rewrite the text or change the pictures at any time until their essay is word- and picture-perfect.

My 15-year-old daughter, Debbie, had a homework assignment: Explain how to perform a task. She used *EssayEase* to help. Her chosen topic was "How to Use a Computer To Do Homework." The questions and outline form helped her organize her thoughts.

Debbie's paragraphs included a brief introduction, a discussion of how to prepare for the assignment, an analysis of how the computer helps, and a conclusion. She selected pictures of a computer, notepaper, and a pen to illustrate her work. Since *EssayEase* helped her get a good grade on her homework assignments, *EssayEase* got a good grade from Debbie.

While the program is easy to use and certainly can motivate children to write, it has a few flaws. First of all, when you print, the result is a hard copy of the screen rather than a formatted essay. The illustrations look great, but there are no formatting options, nor are there places for title and author lines.

I have a few other complaints, too. The word "paragraph" is confusing since children can write many paragraphs within one of the program's "paragraphs." Also, the list for selecting printer type and printer interface is confusing.

EssayEase offers more than just word processing to motivate children to do homework and compositions. And with this program, when youngsters say, "Let me show you what I mean," they can really do it.

—GWEN SOLOMON

ENTERTAINMENT

Balance of Power: The 1990 Edition

SYSTEM REQUIREMENTS: 512Ke Macintosh.

PUBLISHER: Mindscape, Inc., 3444 Dundee Rd., Northbrook, IL 60062; (312) 480-7667

PRICE: $50

COPY PROTECTED: Yes

OVERALL RATING: ★ ★ ★ ★

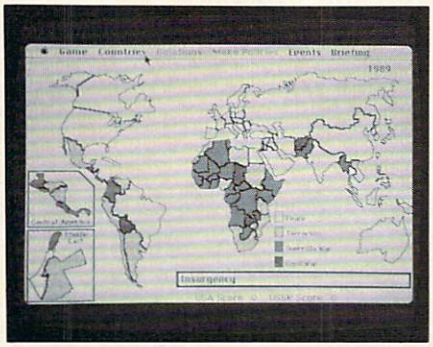
DOCUMENTATION: ★ ★ ★ ★

PLAY SYSTEM: ★ ★ ★ ★

GRAPHICS QUALITY: ★ ★ ★ ★

EASE OF USE: ★ ★ ★ ★

When I first played the original *Balance of Power* a few years back, I considered it a masterpiece. I was impressed by both the game's complexity and its ease of use. Since then, the game's designer, Chris Crawford, has been hard at work updating the program. The result of his work, *Balance of Power: The 1990 Edition*, is not just an improvement over its predecessor; it blows the original out of the water.



The Middle East and Central America are important in maintaining the Balance of Power *in* The 1990 Edition.

As in the original, players of *Balance of Power: The 1990 Edition* assume the role of either the President of the United States or the General Secretary of the Soviet Union as they shape their nations' foreign policies. The object of the game is to build up more prestige points than your opponent over an eight-year term of office—without starting a nuclear war. In order to accomplish this, players are given various diplomatic tools with which to spread their influence and thus build prestige. These tools range from giving military aid at the game's beginner level to the development of trade relations and diplomatic posturing at the more advanced levels.

The 1990 Edition boasts an array of improvements, the most important being the addition of a new "multipolar" level of play. Now world events are influenced not only by the United States and the U.S.S.R., but also by each of the non-player-controlled coun-

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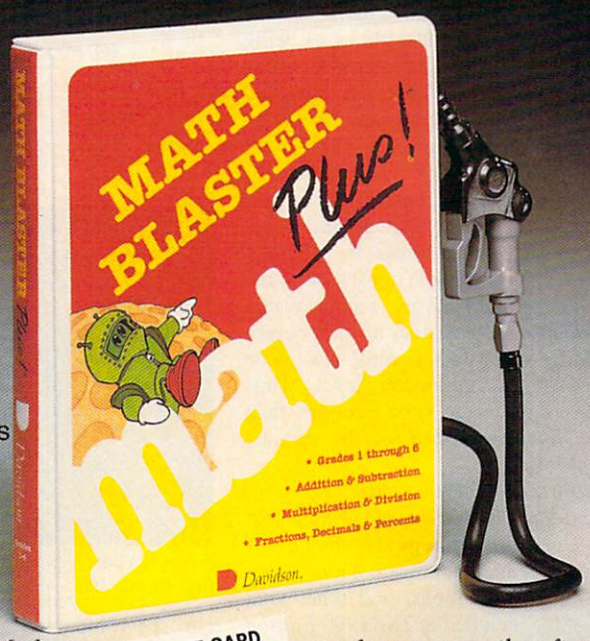

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Davidson.

tries, which have the ability to ship weapons, move troops, and go to war.

The multipolar level adds an entirely new dimension to the game, forcing players to keep a watchful eye on the policies of even the smallest countries of the world because a minor skirmish between two small nations can easily escalate into a conflict between superpowers. Since the United States and the U.S.S.R. are no longer thought of as being alone in the world, the multipolar level opens up new possibilities and dangers in designing foreign policy. The military and economic power and the alliances of each non-player-controlled country have to be brought into play when making decisions. For example, even if you know that the United States is not willing to risk war in order to stop the U.S.S.R. from invading Yugoslavia, other Eastern Bloc nations such as Czechoslovakia and East Germany may rush to their neighbor's defense. Such factors must always be considered at the multipolar level. Thus game play is made far more complex than even the Nightmare Level of the original *Balance of Power*.

To keep track of each country's position, *The 1990 Edition* has new menu options that display the number of troops and amounts of money going in and out of each nation, each country's foreign relations, and other vital statistics. Also included in *The 1990 Edition* is a new Crisis Advisory feature that helps players sort out the various bits of information and avoid making unwise decisions.

The 1990 Edition is as easy to play as the original. Blow-ups of Central America and the Middle East have been added to the main display, making it easier to access the various countries in these small, but important, regions. The new version requires 512K of RAM, whereas the original required only 128K. It uses the extra memory to speed up many processes and improve the responsiveness of the game. *The 1990 Edition* also automatically saves the game at the end of each turn. So if you happen to do something silly like blow up the world, you can restart the game at the end of the last completed turn. This is a mixed blessing. Although it gives players room to experiment with different strategies and see just how far they can push their opponents, it also invites sloppy play. There is a temptation to be reckless when you know that even if you push your opponent to nuclear war, you can always restart the game.

For the new multipolar level alone, I would consider *The 1990 Edition* to be a major improvement over the original *Balance of Power*. The addition of 78 active participants makes it a new game altogether. So if you were at all impressed with the original version of *Balance of Power*, then hold on to your hat—you ain't seen nothing yet. —STEVE WILLIAMS

Star Command

SYSTEM REQUIREMENTS: 256K IBM PC with CGA. 5.25- and 3.5-inch disks.

PUBLISHER: Strategic Simulations, Inc., 1046 North Rengstorff Ave., Mountain View, CA 94043; (415) 964-1353

PRICE: $50

COPY PROTECTED: Yes

OVERALL RATING: ★ ★ ★

DOCUMENTATION: ★ ★ ★ ★

PLAY SYSTEM: ★ ★ ★ ★

GRAPHICS QUALITY: ★ ★

EASE OF USE: ★

Death is commonplace in the early stages of Star Command.

The spaceship circles down from orbit to settle on the planetary surface, seeking clues to the whereabouts of that well-known space villian, Blackbeard. Your marines fan out with loaded weapons while your scout searches for hidden traps and ambush points. Just another day on patrol for *Star Command*, an outer space adventure set in a fantasy realm.

SSI's role-playing adventure is a mammoth multidisk space opera allowing players to assume the roles of star pilots, space marines, laser-toting soldiers, and "espers" (pressure-suited masters of mind control). You start by creating this team of galactic warriors, acquiring a modest spaceship, and outfitting your crew and vessel with the least expensive equipment you can find.

Your employer, the Star Command (a friendly neighborhood outer space law enforcement organization), then sends you out on ever more complex and dangerous missions. The successful completion of each gives you a chance to improve your characters' attributes, buy new ships, and trade in that old equipment for more sophisticated technology.

Star Command is a complex role-playing adventure, requiring hundreds of hours of play for the average gamer. It offers space navigation, ship docking and repair, tactical ship-to-ship combat, human-to-thing encounters, code-breaking, espionage, scientific expeditions, and even a little galactic trading. It can be exciting, but only if you are prepared to go through a long period of building up your characters and equipment to a fairly high capacity, which can be frustrating since you are going to watch many members of your team die in the first 40 hours of play.

Suitable for solo or team play, this is as good as space operas get. You can explore thousands of planets (many of which offer dungeon adventures), fly to new worlds (which may or may not harbor clues to the game's ultimate challenge), and boldly go where only the most foolhardy space adventurers would care to travel. Time consuming, but well worth the ride for both novice and expert gamers. —JAMES DELSON

Zak McKracken and the Alien Mindbenders

SYSTEM REQUIREMENTS: C 64/128, 256K IBM PC with CGA*. 5.25- and 3.5-inch disks (IBM). Joystick or mouse recommended (joystick required for C 64/128).

PUBLISHER: Lucasfilm Ltd., Games Division, P.O. Box 10307, San Rafael, CA 94912; (415) 662-1902

PRICE: $35–$45

COPY PROTECTED: Yes

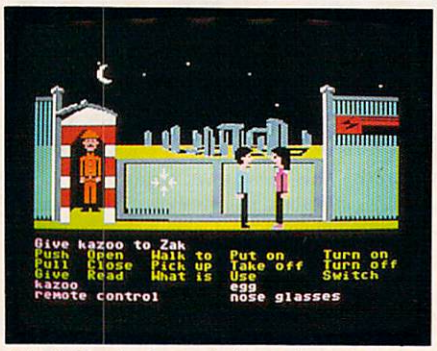
OVERALL RATING: ★ ★

DOCUMENTATION: ★ ★ ★

PLAY SYSTEM: ★

GRAPHICS QUALITY: ★ ★

EASE OF USE: ★ ★



Zak McKracken*'s vocabulary is limited to 15 different verbs.*

A pair of funny-nose glasses, a stale loaf of French bread, and a goldfish named Sushi are but a few of the myriad clues to be found in Lucasfilm's latest comic adventure. In this graphics-oriented game, you take on the role of Zak McKracken, a dissatisfied reporter for a sleazy tabloid magazine. Zak is trying to unravel the mystery of an alien-induced stupidity epidemic that is ravaging the Earth. Along the way, you gain the help of three women (two college students and one scholar) who seem to have been sharing Zak's suspicions.

This game has several uncommon features for its genre. For example, cartoonlike "cut-

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scenes'' appear at various points in the game. These are short animation sequences that show you what is going on in other parts of Zak's world, reveal new clues, and develop the storyline. These are helpful at times and also entertaining if you let your imagination fill in the gaps that the less-than-convincing animation provides. Some of the scenes in the alien headquarters can be really funny, especially at two in the morning.

Another uncommon feature of this game is the ability to control all four of the main characters and have them work together to solve puzzles. Some of the puzzles in this game are designed so that you *must* use two characters in tandem. Unfortunately, the user interface does not lend itself well to this aspect of the game. If you want to move two characters from one scene to another, they must be moved independently; there is no way to move them simultaneously. Because of this, you make the same trip twice.

Speaking of the user interface, all game actions are controlled by a point-and-click system. Actions are selected with a pointer which means that there are a limited number of verbs to choose from (up to 15 at a time). This felt extremely limiting to me, being accustomed to the more open-ended adventures, but I quickly adjusted, and the generic ''use'' command became my best friend. If you don't have a mouse or joystick, then the pointer is controlled by the keyboard—a slow and tedious process. All objects on the screen must be selected with this pointer, but any actions or objects you are carrying can be chosen with a single keystroke.

Despite the flaws, *Zak McKracken and the Alien Mindbenders* is an entertaining and challenging game. The sample copy of *The National Inquisitor* that comes as part of the documentation provides good background information and some helpful hints to the game player while setting the mood for the entire game. The plot is riddled with funny scenes and bizarre twists that make the story worthy of one of the tabloids at which the game pokes fun. —DAMON OSGOOD

Entertainment News and Hints

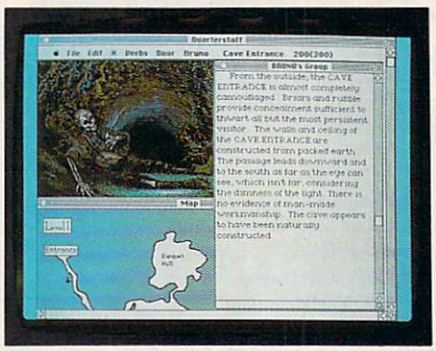
The Latest Scoop on Games

BY JIM PHELAN

HYPERGAMES. The release of *HyperCard* more than a year ago unleashed a flood of games (primarily adventures) that utilized its card-linking technology. These programs received limited distribution since most were either shareware or freeware. One exception has recently surfaced. A five-disk adventure from **Activision** allows players to explore a 3-D animated world that includes more than 600 interconnected cards. Despite the publisher's claim of being for ages 4 to 84, with its allusions to *Alice In Wonderland* and *Jack and the Beanstalk*, ***Manhole*** (**1MB Macintosh**, *HyperCard,* and hard disk; $50) seems to be targeted at children. ***A Sucker In Spades*** (**512Ke Macintosh**; $15) is a detective story in which you investigate the disappearance of a woman's fiancé. After carefully reading **Eastgate Systems**' graphic hypertext mystery, you enter a final report, which is evaluated by the computer. This novel approach to gaming may not catch on, even though the price is right.

DRIVERS NEEDED. From the creators of *Mean 18* comes yet another golf simulation. ***Jack Nicklaus' Greatest 18 Holes of Major Championship Golf*** (**512K Amiga, 512K Apple IIGS, C 64/128, 256K IBM PC**; $30–$45) features three courses and many computer opponents (including the master himself). It looks as if this Nicklaus game will be the first of many, since the Golden Bear has a three-year contract with **Accolade**, the game's publisher. **PCAI** has taken a detour from its *MacGolf* series with ***Road Racer*** (**1MB Macintosh**; $70). Your '65 Corvette has 350 horses to pull you across one of five courses, each with different terrain. To complete a course within the allotted time, you must *average* 120 m.p.h.—so buckle up.

HISTORY LESSON. Travel back to the mobster-ridden 1930s in **Icom Simulations**' sequel to its first ''Macventure.'' ***Déjà Vu II: Lost in Las Vegas*** (**512K Amiga, 512K Apple IIGS, 512K Atari ST, 512Ke Macintosh, 512K IBM PC**; $50) promises to be a hit as long as it has the same top-notch graphics and humor found in Icom's other milestones (*Déjà Vu I*, *Uninvited*, and *Shadowgate*, which were published by Mindscape). Preceding this time period by almost a century is the era of ***Gold Rush!*** (**512K Amiga, 512K Apple IIGS, 256K IBM PC, 512K Macintosh**; $50), an adventure that explores a pioneer's trek from New York to the gold fields of California. **Sierra On-Line**, the game's publisher, claims that the game is historically and geographically accurate, but I'm more interested in how effectively three completely different games can be combined in the one adventure.



If you're not careful, you may share this adventurers fate in Quarterstaff.

DEMONS & BARONS. While playing ***Demon's Winter*** (**64K Apple**; $30), you discover that your mission is to locate a demon named Malifon who has cast a spell that will cause a frigid winter. Instead of slaying him (which is what **Strategic Simulations, Inc.**, had in mind), you may want to thank Malifon for offsetting the Greenhouse Effect. Another unusual adventure is ***The Legend of Blacksilver*** (**128K Apple, C 64/128**; $40–$50), in which a Baron is possessed by the mystical mineral Blacksilver. The Baron's plot to submerge a continent can only be stopped by rescuing the king of the land with the assistance of his beautiful daughter. **Epyx** announced that *Blacksilver* will be available for the **512K IBM PC** in February.

REVAMPED. Even though ***Quarterstaff: The Tomb of Setmoth*** has been on the market for close to two years, **Infocom** has purchased the rights to the game from **Simulated Environment Systems** (SES) and is redistributing the graphic fantasy-role-playing adventure. Af-

Aussie JOKER POKER

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The latest multi-player multi-format PC game from Australia is different to all forms of Poker.

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Cash Prizes for Aussie JOKER POKER Contest Grand Final:

Highest Scorer:	$100,000
Second Highest Scorer:	$5,000
Third Highest Scorer:	$2,500
Lowest Scorer:	$1,500
16 Consolation Prizes of $1,000 each to eliminated Finalists	$16,000
Prize includes air travel for Finalists and their guests from the major airport to Las Vegas with two days and two nights accommodation at the Golden Nugget (approx. retail value $750 each subject to departure points).	$15,000

All taxes and other expenses not specified herein are sole responsibility of winners. All winners will be notified in writing.

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Apple II	**$39.95**
C64/128	**$29.95**

If ordering by telephone add $3 shipping & handling and check that your PC meets the minimum hardware requirements as no cash refunds apply. Warranty is limited to free replacement of faulty products returned by prepaid post.

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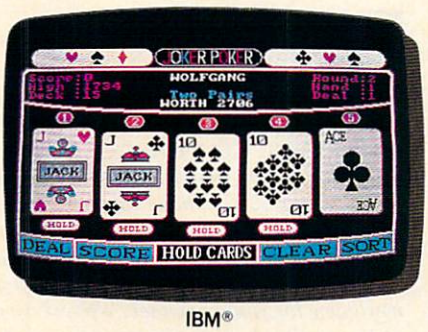
1. No purchase necessary to enter.
2. Void where prohibited by state or federal law.
3. To enter, simply complete and return the the official entry form.
4. Limit five entries per family or household. Five free entry forms and full contest rules are included with "Aussie Joker Poker" or may be obtained by sending a stamped self-addressed envelope larger than 5½" × 7½" with a hand written request to: Aussie Joker Poker Contest Entry Forms, P.O. Box 22381, Gilroy, CA 95021-2381. Mail-in requests limited to one per name, household or family and must be received no later than 3/31/89. WA & VT residents need not include return postage. Full rules also available from participating Mindscape retailers.
5. Monthly entries must be received no later than the last day of the month in which a drawing will take place in order to participate in the month's drawing. Drawings will be held from December, 1988 through April 1989, inclusive. Final entries must be received by 4/30/89.
6. Contest open to legal residents of the U.S.A. and Canada (other than Quebec).
7. Odds of winning depend on number of eligible entries received.
8. Contest subject to complete official rules.



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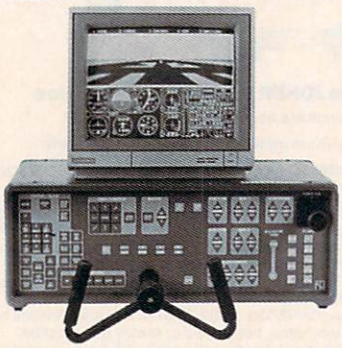
JP12A

CIRCLE READER SERVICE 40

ter a thorough reworking, the plot remains the same: "Discover what fate has befallen the gentle souls of the Tree Druid colony." I enjoyed the original, which had a mapping system ahead of its time, and am looking forward to playing the most recent incarnation, which is available for the **512K Macintosh** ($50). A color Mac II version can be obtained for an additional $10, while owners of the SES version may purchase an upgrade for $20 with proof of purchase.

SECRET MISSIONS. Two flying simulators will be of interest to pilots of all ages. **Epyx** has introduced ***Dive Bomber*** (**64K Apple, 512K Atari ST, C 64/128, 512K IBM PC**; $40–$50). It's 1941, and you're out to seek revenge for the German battleship *Bismarck*'s sinking of the British HMS *Hood*. While protecting your allies, you may run into German U-Boats and E-Boats, as well as enemy fighter aircraft. **MicroProse** has tapped into the latest technology with ***F-19 Stealth Fighter*** (**C 64/128, 384K IBM PC**; $45–$70). Learn how to fly invisibly while on reconnaissance missions in the four corners of the world. The graphic detail found in this new generation flight simulator is bound to set a standard for all to follow.



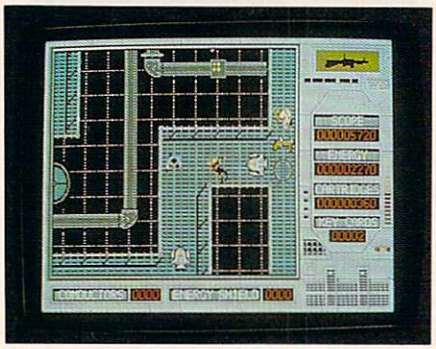
The Cockpit Procedure Trainer *turns your flying game into a real flight simulator.*

ULTIMATE GIFT. There are quite a few yokes on the market for computer pilots, but **The Cockpit Procedure Trainer** takes the cake. Not only does it have a yoke and throttle, but it is the control panel of an airplane similar to a Piper Warrior or Cessna 172! The lucky recipients of **Novel Twist**'s expensive ($625) toy will no longer have to type commands into their keyboards since all flying functions are realistically controlled by the Procedure Trainer. The sales brochure states that it is a "low-cost at-home training aid for serious practice of difficult in-flight procedures . . . or just for fun and relaxation after a hectic day." I know what I'd use it for. The Procedure Trainer is currently compatible with **Microsoft**'s ***Flight Simulator*** and **SubLogic**'s ***Jet***, with more to come. The Trainer will only function with IBM PCs that have a 5-pin DIN keyboard connector and can run the aforementioned software (which is not included). Add-ons that can be used with the Procedure Trainer include a rudder pedal subsystem and a floor-mounted joystick that Novel Twist says are on the way.

GAME HINTS

Alien Mind (PBI Software, Inc.). An alien has taken over the New Zekford Space Station. In this arcade adventure you must infiltrate the high-security area to destroy the alien. (512K Apple IIGS)

★ Listen to Aaron's messages carefully since deviating from his instructions could be fatal.
★ Sometimes you can find conductors or extra energy on dead bodies or under stationary robots.
★ Clues to passwords exist in Aaron's messages.



Being cornered by deadly robots is one of the many dangers you face in Alien Mind.

★ The password of the Captain's terminal is related to a police car.

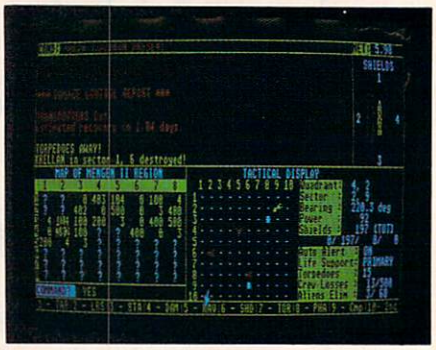
—KRISHNA SADASIVAM
Knoxville, Tennesee

Questron II (Strategic Simulations, Inc.). An adventure in which you are transported to the past to prevent the creation of The Evil Book of Magic. (64K Apple, 512K Apple IIGS, 512K Atari ST, C 64/128, 256K IBM PC)

★ Purchase every rumor you are offered.
★ Frequently visit Mesron in the Hall of Visions.
★ To become worthy, either find the Unicorn Horn in Redstone Castle and return it to the Great Plains Cathedral, or become a Knight.
★ To buy bread from the holy ones, you need to find the Moonstone Amulet in the Rivercrest Tomb.
★ Speak to Morle the Magician in the Rivercrest tomb.
★ While in the Rivercrest tomb, give to those who ask.
★ Your charisma can be raised in the Redstone castle while your intelligence can be raised in The Fortress.

—CURTIS KONELSKY
Rocky Mountain House, Alberta, Canada

Star Fleet I (Interstel). Your mission is to protect the outer regions of the Alliance from the invading warships of the evil Krellan and Zaldron empires. Under your control are a crew of 500 and a ship with 25 command options. (512K Amiga, 64K Apple, 512K Atari ST, C 64/128, 128K IBM PC, 512K Macintosh)



There's much more to Star Fleet I *than destroying Krellan warships.*

★ Your first and foremost concern is to find a starbase.
★ When capturing ships and taking prisoners, turn off the Auto Alert Switch.
★ If you suspect a Zaldron is in your quadrant, watch the Tactical Display while resetting your shields.
★ While defending your starbase, don't leave the quadrant until all Krellans and Zaldrons have been destroyed or have fled.
★ When self-destructing, make sure that you are extremely low on power and that there are enemies in your quadrant.

—MARTIN MAYFIELD
Saratoga, Wyoming

CONVERSIONS

Blue Powder Grey Smoke (Gardé). Now available for 256K IBM PC, 512K Macintosh. Already out for 64K Apple, C 64/128. Reviewed in the October 1987 issue.

Star Trek: The Promethean Prophecy (Simon & Schuster). Now available for 512K Macintosh. Already out for 64K Apple, C 64/128, 128K IBM PC. Reviewed in the June 1987 issue.

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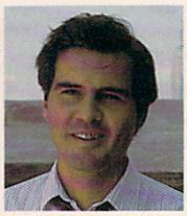
Imagining Holiday Life At the Office

BY NICK SULLIVAN



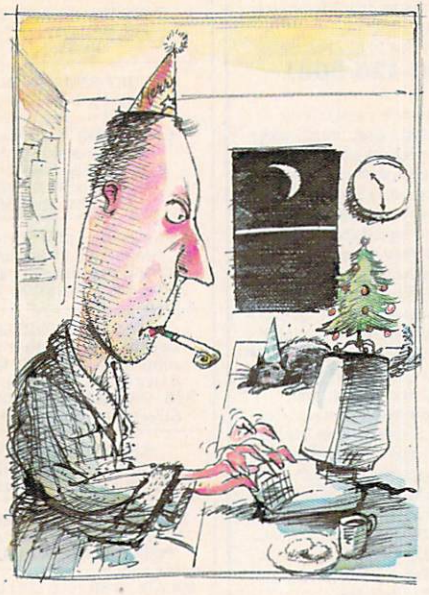
About this time of year (''Hello, darkness, my old friend'') I start to feel like I live in Ice Station Zebra. The frozen tundra and winds whipping off the sea make me yearn for the festivity and frivolity of an office in the full swing of the holiday season. Lights, cheer, gifts, jokes. . . Surely these feelings are part of the yin-yang existence of every telecommuter, who is sometimes in—and sometimes out of—the action.

Not that office parties are all that exciting. But they do play a ritualistic role in the life of an office worker—and you're an office worker whether you're wearing a tie in a Manhattan skyscraper or slippers in Ice Station Zebra.

Office parties are a time of reckoning. ''How did we do this year?'' and ''Where are we going?'' people ask. In the generally good-natured talk, all the interoffice misunderstandings of the past year can be smoothed over and forgotten, as easily as the jagged lines of an Etch-a-Sketch drawing. You are ready to start fresh; the coming year is a *tabula rasa*.

Even better, the seemingly never-ending holiday season is a time, to put it bluntly, when little real work gets done. People do what they must do, but deep thinking is out—*verboten*! What could be better for morale, for productivity, than a mini-vacation of the mind? The break from routine and hard work is like going on retreat with your coworkers.

Now how do I, frozen into my electronic outpost, take part in the cleansing year-end rituals without actually being there? Do I remain handcuffed to my computer? Do I try to concentrate on work while the rest of the world is telling jokes about the stale fruitcake that a key customer has just sent by Federal Express? While you mull over these difficult questions, let me point out some other advantages my office counterparts have over me. I might as well spill it all out at once, as part of my year-end catharsis.



You're an office worker whether you're wearing a tie in a Manhattan skyscraper or slippers in Ice Station Zebra.

Emptying wastebaskets, vacuuming rugs, and otherwise keeping a shipshape workspace is up to me—not a nightly cleaning service. Assessing the correct amount of postage and finding the stamps for packages of all sizes is up to me—not the mailroom. And when equipment breaks I have to drive it to the dealer and make do while it's being repaired. At the office, I'd just slide a replacement into use. In most cases, these problems are minor ones that can be overcome with good organization, but they can also be little thorns.

Now, back to weightier matters. The all-important issue of a retreat for the mind is, it seems to me, a year-long problem for homeworkers that is merely highlighted at year's end. Put simply, I don't get as many natural breaks from the computer and work as I would in a normal office atmosphere. Research from Link Resources indicates that my situation is not abnormal, and that homeworkers generally put in more hours (and are more productive) than office workers, due to the lack of a commute and other interruptions. Impromptu and formal meetings, hallway and elevator encounters, and extended lunch hours break up a day at the office.

Working at home, I try to make my own breaks. The aforementioned postal and equipment dealings provide a change of pace, but they rarely come at the right time. However, I've long forced myself to periodically print out materials so that I can rest my eyes by working with ink-on-paper instead of phosphor-on-screen (my two favorite media). Recently, I've gone a step further; when I find myself running out of steam, I move from my desk to a nearby chair and spend 15 minutes with a book on technology, business, or computer people. For instance, I've been pawing through Harvey Mackay's *Swim with the Sharks Without Being Eaten Alive*, and Stewart Brand's *Inside the Media Lab: Inventing the Future at MIT*. Before that I flipped through John Sculley's *Odyssey*.

These books are only indirectly related to my work, which is what makes them so appealing. I'm looking for ideas or background on subjects I should know more about, but I'm not working hard. This kind of low-key work can be rejuvenating, just like a lively meeting, because it sparks your mind and sends it off in new directions.

During the holiday season, of course, the mind welcomes surcease more than sparks, and the spirit longs for conviviality, not solitude. This is not a critical problem at Ice Station Zebra, because I am surrounded by family and friends, but the work-half of the brain still needs coddling.

As the holiday season starts, I wonder about life in the main office. If I don't show up, will it be like I wasn't there all year? Is everyone but me getting a new computer on their desk? Yikes! I'd better hop on a train right now and find the party. Keep the punch flowing! ■

NICK SULLIVAN *is a senior editor of* HOME-OFFICE COMPUTING *who lives and works in Dartmouth, Massachusetts.*

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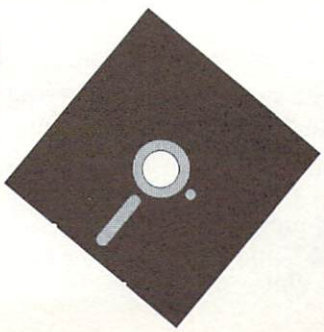

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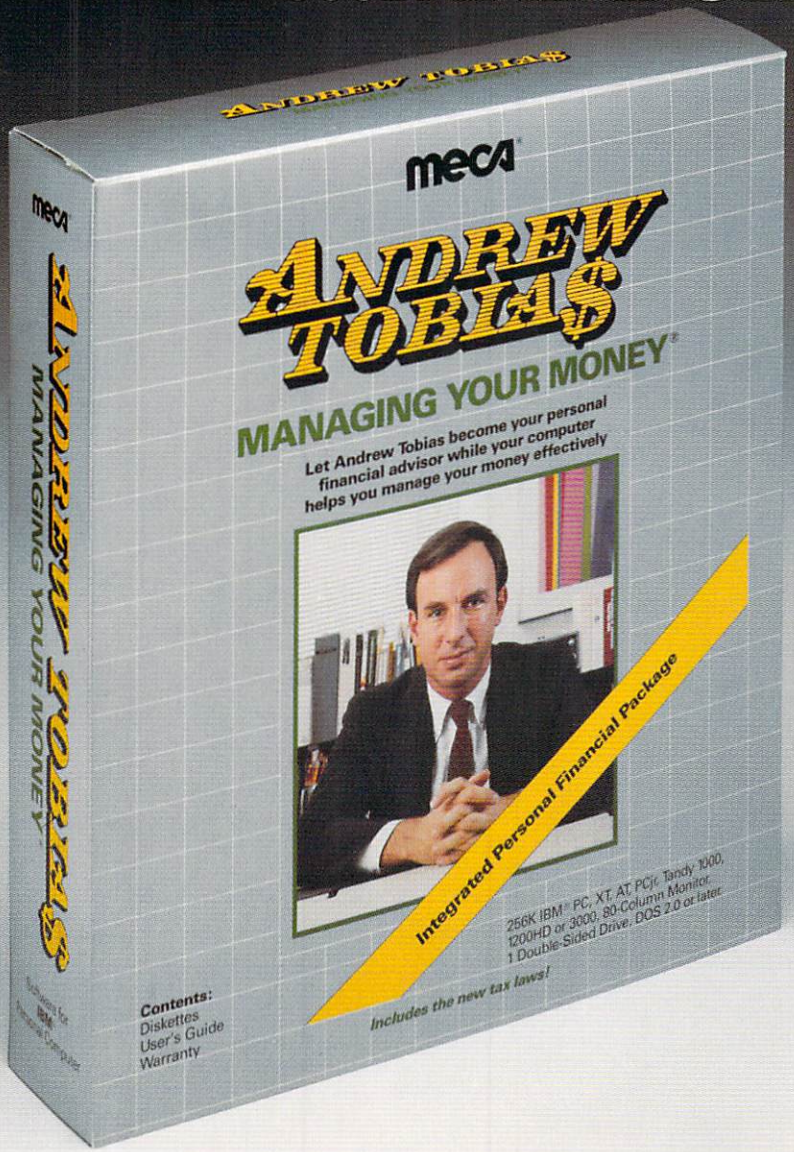

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